Aquatic Resource Education Guide

A SUPPLEMENT TO THE FEDERAL AID HANDBOOK **522 FW 13**

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1 December 1995

Appendices. The U.S. Fish and Wildlife Service, Division of Federal Aid will develop, distribute and update them on a continuing basis.

Appendix 1: List of ARE Contacts - State and Federal agencies.

Appendix 2: Sample Grant Forms

Other appendices that may be developed:

- Summary of existing State ARE programs (staff, volunteers, budget and approaches)
- Hypothetical example of a complete ARE grant proposal, grant agreement and performance report.
- Annotated bibliography of helpful references (by category)
  Learning Styles
  Evaluation
  Conducting Meetings
  Coordinating Volunteers
  Aquatic Ecology
  Computer Use
  Literature ("A River Runs Through It," "A Sand County Almanac," The Compleat Angler")
- List of related education players at the national level
- List of partners and other supporting organizations
- Techniques
- Recommended literature

Preface

Aquatic Resource Education (ARE) has become a vital component of state fish and wildlife agency programs across the nation. Educating various publics about the importance of aquatic resources, in an attempt to modify peoples' behavior to better protect and enhance those resources, is a challenging task. Although this *Aquatic Resource Education Guide* (ARE Guide) is a supplement to the ***Federal Aid Handbook*** *(*Handbook), it is also designed for independent distribution to state aquatic education personnel and their cooperators to help develop, implement and evaluate aquatic education projects, as authorized by the **Federal Aid in Sport Fish Restoration Act (SFR, as amended)**.

The latest version of the Handbook was distributed to the states in 1993, after years of discussion about its content and possible revisions to the law. In organizing the Handbook, states wanted clear separation of: 1) the congressional acts establishing the Federal Aid laws, 2) mandatory Federal Aid policies, necessary for project approval, and 3) guidance material to facilitate development of high quality projects. Therefore, while rewriting the Handbook, a constant goal was to relate its content directly to interpretation of the **Federal Aid Acts** (for example, Sport Fish Restoration, Wildlife Restoration, Coastal Wetlands, Anadromous Fish, Clean Vessel). In this way, the Handbook serves as policy guidance for the operation of the Federal Aid Program. Suggestions and examples from successful state projects were excluded from the Handbook intentionally. Rather, a series of supplemental handbooks, such as this ARE Guide, were to be appended to the Handbook to provide this information in the form of discretionary guidance.

At the request of the Federal Aid Office in Washington, D.C., a task force was formed consisting of Federal Aid and state fish and wildlife agency representatives involved in fisheries, aquatic education and/or Federal Aid Program administration. An effort was made to survey all state fisheries agencies, both freshwater and marine, to determine what this Handbook supplement should contain. The task force then convened to develop an outline and plan of action for writing this document. Subsequently, a draft of the ARE Guide was distributed for review by Federal Aid staff and by the Aquatic Resource Education Association (AREA) board and officers. It then was presented at the National Aquatic Resource Education Conference in Pennsylvania in 1994 and mailed to State Federal Aid Coordinators and Aquatic Resource Education Coordinators for review and input. The result was this ARE Guide, which is intended to provide useful information and examples to facilitate development and implementation of outstanding individualized state aquatic education and outreach projects.

This guide is strictly advisory in its design and function. It does not create policy or supercede provisions outlined in the Federal Aid Handbook.

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Chapter 1: Introduction

In almost every state, fisheries biologists acknowledge that habitat is the most crucial factor in maintaining healthy sport fisheries. However, human population growth continually places more stress on our nation's aquatic resources. In addition, as the population becomes more urban, the average citizen seems to be less committed to these resources, a trend partially attributed to decreased interaction with the aquatic environment. Consequently, it is increasingly important to educate people about human impacts on aquatic resources and to make them aware of the importance of political decisions involving growth management, pollution control and water supplies. In addition, exposing non-anglers to the recreational aspects of fishing should pay dividends, because this activity provides them with a firsthand connection to the resource. This connection gives them a reason to protect the resource by their personal actions, and act as vocal advocates for aquatic resources in the political arena.

The **Sport Fish Restoration Act**, as amended in 1984 (the Wallop-Breaux amendment), authorizes a state to spend up to 10 percent of its Federal Aid apportionment on aquatic resource education (ARE). However, it maintains the original (Dingell-Johnson) stipulations that these funds cannot be used to promote state activities other than those funded by Federal Aid. ARE projects are defined in the amended act as those that increase "public understanding of the nation's water resources and associated aquatic life forms." Further guidance can be found in the regulations and this guide (**See Chapter 3**.)

This ARE Guide should be inserted in the Federal Aid Handbook and was printed for a three-ring binder, anticipating it will be updated and improved consistently. It is intended to offer tips and practical examples to facilitate development and refinement of effective, efficient ARE projects that can be readily tailored to the individual state's needs. Use of this supplement by the State Federal Aid Coordinator, State Aquatic Education Coordinator, and Fish and Wildlife Service (FWS) Aquatic Education Specialists (See definitions below) should ensure projects meet the requirements of the act and Handbook; however, suggestions in this guide are neither mandatory nor all-inclusive, and states are at liberty to develop other project components, provided they meet the stipulations of the act and Handbook. The test of acceptability for a grant proposal is that it must be both eligible under the act and substantial in character and design.

In addition, this ARE Guide is being distributed independently of the Handbook to provide a resource for state ARE coordinators, their staff and non-agency partners. When used independently of the Handbook, however, plans should be discussed carefully with the state's Federal Aid Coordinator and hierarchy, as well as the FWS Aquatic Education Specialist to ensure they fit within the overall agency goals and the 10 percent funding cap on ARE projects. Close cooperation between the state's fisheries and education/information personnel in developing these plans is encouraged, regardless of the organizational unit to which the ARE Coordinator is assigned. Finally, networking with peers in other states, industry representatives, state education departments and resource user groups are important keys to success.

The chapters have been designed so that after an initial review of the material, they can be referred to as specific needs arise. To prevent making the ARE Guide unwieldy, we have used carefully selected references throughout; these should be perused for additional insights, as needed. Sidebars are used to provide examples of concepts that are discussed. Contributions from state ARE coordinators about program specifics that may be useful to other ARE coordinators are also included in **Chapter 6**, **"Borrowing Good Ideas."** Materials that have a tendency to become outdated were placed in appendices and will be revised periodically. In addition, the appendices will be maintained in a share file on Internet. These include contact lists for FWS Aquatic Education Specialists, State Federal Aid Coordinators, State ARE Coordinators, non-profit organizations and commercial sources of useful materials and supplies.

The task force that originated this ARE Guide intended for it to be used as an aid in all phases of ARE project development and implementation to help create a customized and highly successful ARE project in each state and insular possessions. Comments on what should be included in future rewrites, and especially updated information for the appendices, should be routed to your regional FWS Aquatic Education Specialist.

Who's Who in the Guide

Because job titles vary from one agency to the next, for the purposes of this guide the following position definitions are used:

State Federal Aid Coordinator:
The state agency person who is responsible for coordinating Federal Aid documents and projects.

State ARE Coordinator:
The state agency person who has primary responsibility for managing the Aquatic Resource Education program. The ARE Coordinator usually is listed as the primary contact or principal investigator on Federal Aid grant documents.

FWS Aquatic Education Specialist:
The person (or people) in the Fish and Wildlife Service regional office who has primary responsibility for assisting state personnel with their ARE grants and programs.

*The reference to "States" in this document include the District of Columbia, Puerto Rico, Guam, American Samoa, Virgin Islands, and Northern Mariana Islands.

Chapter 2: Getting Started-Program Background

History

The Federal Aid in Sport Fish Restoration Program is a cooperative effort involving Federal and State government agencies, the sport fishing industry, and anglers and boaters. The program is designed to increase sport fishing and boating opportunities through wise investment of anglers' and boaters' tax dollars in state sport fishery development projects. The program was created in 1950 through the Federal Aid in **Sport Fish Restoration Act**, (also called the Dingell-Johnson or D-J Act after the Congressmen who sponsored it), which charged a 10 percent excise tax on some fishing tackle. Monies were to be used by states for sport fish enhancement and were not authorized for aquatic education efforts. The act also stipulated that to participate in the program, a state's legislature must pass a law prohibiting the diversion of fishing license fees from any activity other than operation of the state's fish and wildlife agency.

The program was expanded in 1984. The Wallop-Breaux Amendment (known as such for its congressional sponsors and passed as part of the Deficit Reduction Act of 1984) added additional tackle and sport fishing equipment under the excise tax and added a motorboat fuel tax. The Wallop-Breaux Amendment authorizes a state to spend up to 10 percent of its apportionment on Aquatic Resource Education. It also stipulates that new money generated under this amendment must be additive to the existing state budget for fisheries and can not be used to replace existing sources of revenue.

In 1989 the Chartmaker 2000 Conference brought together the key players involved in planning the future of the Federal Aid in Sport Fish Restoration program. Attending this conference were representatives from state game and fish agencies, sport fishing groups, tackle and boat manufacturers, wholesalers and retailers, Congress, U.S. Department of Interior, Fish and Wildlife Service (FWS) and Federal Aid program. The group recognized that more information needed to be circulated on the accomplishments and benefits of the Sport Fish Restoration Program. As a result of these discussions, the term “outreach” was introduced formally to the Program through a 1992 amendment to the act. Although providing various publics with information about Federal Aid projects always has been an eligible activity under the Federal Aid grant programs, outreach now is defined and recognized as an eligible activity under all grant programs (**see Chapter 3**.)

How the Program Works

The Federal Aid in Sport Fish Restoration Program operates through a user pays-user benefits cycle of tax collection and disbursement. Manufacturers initiate the cycle with payment of taxes on certain items associated with pursuit of the sport although the user ultimately pays the tax. In general, these tax dollars are collected by the U.S. Treasury and disbursed by the U.S. Fish and Wildlife Service Division of Federal Aid to the states under the authority of the Sport Fish Restoration Account. The states use these funds to support sport fish restoration projects that typically include fisheries research and management, habitat improvement, wetlands conservation, aquatic education, and fishing and boating access projects. The cycle is completed with a return of benefits to the users in the form of increased sport fishing opportunities, better boating access facilities, aquatic education and outreach activities.

Sources of Program Revenue

The Sport Fish Restoration program receives money from four sources: 1) excise taxes on fishing equipment; 2) import duties on fishing tackle, pleasure boats, and yachts; 3) a portion of the federal fuel tax revenues attributable to the sale of motorboat fuels; and 4) interest accrual (see Figure 1.)

1. *Excise Taxes* - These funds are from a 10 percent manufacturers' excise tax on many items of sport fish tackle. Taxed items include rods, reels, artificial lures, tackle boxes, and most accessories. Also, monies are collected from a 3 percent manufacturers' excise tax on electric trolling motors and certain types of fish finders (sonar devices). The cost of these taxes is passed on by the manufacturers to their customers through the price they charge for their products.

2. *Import Duties* - Revenues collected from the sale of imported fishing tackle, pleasure boats, and yachts.

3. *Motorboat Fuel Taxes* - The program receives a portion of the monies collected by the U.S. Treasury from the 11.5-cent-per-gallon federal fuel tax paid by producers and importers of gasoline on nationwide fuel sales. Studies have determined that 1.08 percent of total fuel tax revenues are attributable to the sale of motorboat fuels.

4. *Interest* - Since the Aquatic Resources Trust Fund was created by Congress in 1990, a significant amount of interest accrues to the fund before it is actually spent by the states.

Apportionment of Program Funds

The Washington, D.C., office of the FWS Division of Federal Aid is responsible for apportioning the Sport Fish Restoration Account monies among the states using the following formula: 40 percent of the amount apportioned is based on each state's land and water area (including coastal and Great Lakes waters) in relation to the total land and water area of the United States. The remaining 60 percent of the amount apportioned is based on the number of paid sport fishing license holders in each state in relation to all of the paid fishing license holders in the United States.

No state may receive more than 5 percent of the total amount available for apportionment, and no state may receive less than 1 percent. Further, Puerto Rico receives 1 percent, and the District of Columbia, Guam, American Samoa, the U.S. Virgin Islands, and Northern Marianas Islands each receive 1/3 of 1 percent.

Sport Fish Restoration Program Funds are available only to state agencies responsible for managing the sport fishery resources of that state. Universities, private organizations, other state agencies, or county and municipal governments may cooperate with state fisheries agencies on sport fishery development and other projects administered by the state fisheries agency. However, the state is still responsible for setting priorities and for making such project proposals to the FWS. This is an important concept because of its impact on cooperative resource education and outreach projects.

Since passage of the Wallop-Breaux Amendment of 1984, funds may be used for both fresh- and saltwater projects. The division of money is based on the proportional number of resident fresh- and saltwater anglers, not license holders (which are used for apportioning money to the states), with the stipulation that freshwater agencies will not receive less than their 1988 apportionment.

Expenditure of Program Funds

Upon being notified of their apportionment and eligibility to receive program funds, state fisheries agencies propose sport fisheries projects according to state priorities and needs. These projects are presented for approval by the regional FWS Federal Aid office (**see Chapter 3**.)

When the regional Federal Aid office approves a project, an amount of up to 75 percent of the estimated cost of the project is set aside for the state to be reimbursed from the Sport Fish Restoration Account.

The state must first spend money on the project and then is reimbursed for up to 75 percent of the cost. The state share must be at least 25 percent of the cost and must be derived from a non-federal source, such as state fishing license fees, state general funds, private donations, or other contributions.

Types of Projects that are Allowed

Almost any type of sport fishery restoration, management, or enhancement project is eligible under this program. The standard criterion used by the FWS Federal Aid staff to evaluate a proposed project is that it must be "substantial in character and design," as required by the original 1950 Sport Fish Restoration Act. "Substantial in character and design" generally means the state must demonstrate a substantial need to undertake the project and that the project must be technically sound and competently designed (**see Chapter 3**.) If a proposed project meets these criteria and if it passes through an array of other tests related to other Federal laws, it is approved for funding by the FWS Division of Federal Aid.

Sport fisheries research and management activities, fishing programs, boating access development and maintenance, aquatic resource education projects, outreach, lake construction and maintenance, land acquisition, technical assistance, planning, habitat enhancement, administration, and hatchery construction and operation are all allowable projects. Law enforcement and public relations are examples of projects that are specifically prohibited by the Sport Fish Restoration Act. Generally, states have wide latitude to undertake projects addressing sport fish priorities.

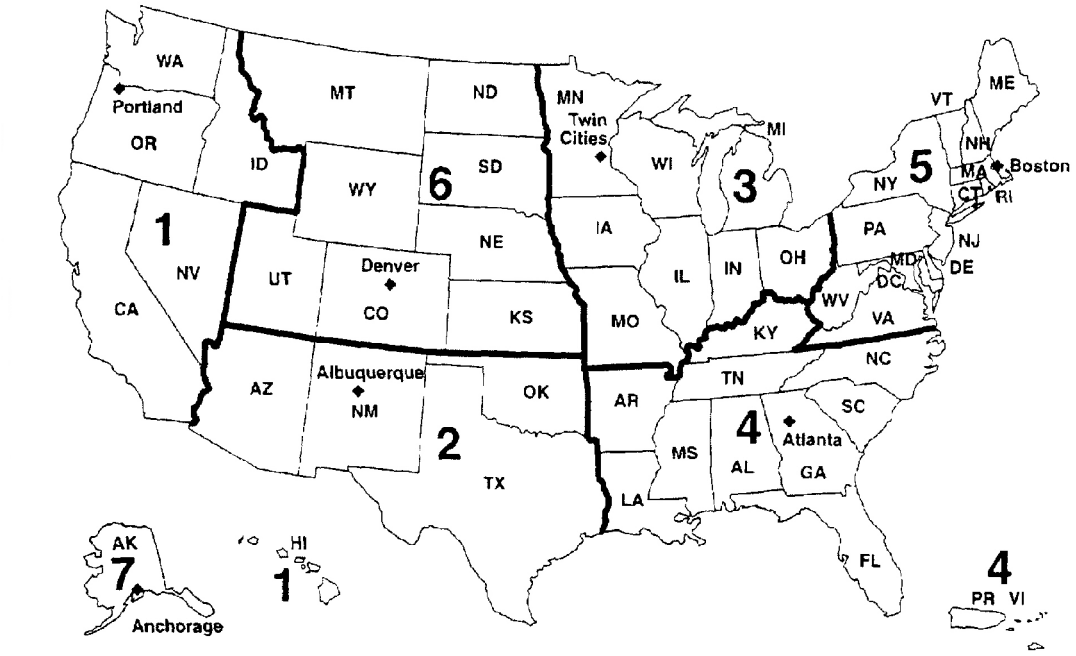
The 1984 Wallop-Breaux Amendment to the Sport Fish Restoration Act provides that up to 10 percent of a state's annual apportionment may be used to fund an aquatic resource education and outreach program, “for the purpose of increasing public understanding of the nation’s water resources and associated aquatic life forms.” (Sport Fish Restoration Act, as amended).

Figure 1. Flow chart of Sport Fish Restoration Act Funding

The Cycle of Federal Aid in Sport Fish and Wildlife Funding

Through the most effective “user-pay, user-benefit” programs in the nation, anglers, boaters and hunters provide vital financial support for fisheries and game management, boating access and related programs. Contributions from sportsmen–in the form of an excise tax attached to various items used for fishing, hunting and boating–perpetuate a annual cycle of funding. Money is distributed to states based on a formula that looks at the size of the state and the number of fishing/hunting licenses sold, with no state receiving more than 5% or less than 1% of total funds available. This money is then used by state wildlife agencies, who carry out important fisheries and game programs each and every year. Beyond the direct benefit to sportsmen, the program has strong economic value for businesses connected to fishing, boating and hunting.

Figure 2. Map showing the U.S. Fish and Wildlife Service Regions.



Roles and Responsibilities

FWS Division of Federal Aid Washington Office

The Washington, D.C., office of the FWS Division of Federal Aid, is the central administrative office for a number of Federal-state fish and wildlife grant programs, including the Sport Fish Restoration Program. The office also administers grant programs under the Federal Aid in Wildlife Restoration Act (as amended), Anadromous Fish Conservation Act, Endangered Species Act, Clean Vessel Act, Coastal Wetlands Planning, Protection and Restoration Act and the Partnerships for Wildlife Act.

A primary responsibility of the office is to establish regulations and policies for each of these programs. In essence, the office staff translate the broad statements of the Sport Fish Restoration Act and the other laws and amendments into the specific, detailed rules that guide each program. Each year, the office makes the apportionments of program funds to the states and certifies the eligibility of each state to participate in the programs. In providing support both to the FWS Deputy Director for External Affairs and to the regional offices, staff members use their expertise in such areas as grants accounting, management and audits, U. S. Treasury disbursements, electronic funds transfers and policy development as well as professional expertise in fisheries, wildlife and education. The staff also provides information about the programs on request to the Congress, industry partners, private organizations and the public.

FWS Division of Federal Aid Regional Offices

The FWS is divided into seven administrative offices nationwide (**Figure 2**). Each region has a Federal Aid Chief and supporting staff. The regional FWS Federal Aid staff reviews and evaluates project proposals to ensure the proposals comply with the applicable program law and its associated regulations and policies, as well as other applicable federal laws. These other applicable federal laws are commonly referred to as "compliance requirements" (**see Chapter 3**.) The regional Federal Aid staff works directly with Federal Aid Coordinators in each state within their respective regions.

The regional Federal Aid office monitors projects funded through the program, including Aquatic Resource Education, to ensure program funds are used properly and project goals and objectives are achieved. After each project is completed, the state must submit to the regional Federal Aid office a performance report documenting results and accomplishments of the project. These reports are compiled by the Washington office in its Federal Aid Accomplishments Reporting System, which is part of the Federal Aid Information Reporting System (FAIRS).

FWS Aquatic Education Specialist

Each regional office has an Aquatic Education Specialist or several designated staff biologists who work with the states in their region on Aquatic Resource Education projects. The staff specialist(s) offer help in a variety of areas, assisting in the early planning stages of a project proposal and offering information and insights from other states or education programs. They may also set up special training workshops and meetings to assist the state aquatic education coordinators. Working closely with the State Federal Aid Coordinators, they help answer questions and resolve problems on all aspects of administering these projects.

State Federal Aid Coordinator

Each state fisheries agency designates a Federal Aid Coordinator for Sport Fish Restoration or a grants administrator who processes all state project proposals to ensure they meet FWS Federal Aid requirements as detailed in the Federal Aid Handbook. This includes an extensive list of compliance requirements and assurances (**see Chapter 3**.) The State Federal Aid Coordinator sends each proposal to the appropriate regional FWS Federal Aid office. The State Federal Aid Coordinator usually works with the ARE Coordinator to meet these responsibilities.

In most states, the State Federal Aid Coordinator speaks for the agency director in Federal Aid Program matters and serves as the main contact person with the regional FWS Federal Aid office. The State Federal Aid Coordinator must be a key member of the state agency's Aquatic Resource Education project team and should be involved from the outset with project proposal planning and development.

State ARE Coordinator

The ARE Coordinator (called a project leader in some agencies) is the person designated by the state to be responsible for meeting the objectives of the project and managing the project in accordance with Federal Aid rules, policies and regulations. Technical guidance in meeting this responsibility is provided by the State Federal Aid Coordinator. The ARE Coordinator typically plans and writes the project proposal that is submitted to the regional FWS Federal Aid office for approval, supervises the project as it is being implemented, monitors progress and prepares required performance reports.

Partners

Many national and local groups have a vested interest in the Sport Fish Restoration Program, including Aquatic Resource Education. They include representatives of industry, user groups, and other special interest groups. These partners actively have supported both fisheries and education programs and continue to be important sources of program support, equipment, expertise, and volunteers (see **Chapters 3** and **4**.) Appendix **XXX** provides a partial list of various partners and supporting groups; this list will be updated periodically as other groups come forward.

Chapter 3: Developing Approvable Grant Proposals, Grant Agreements and Performance Reports

Grant Components

Aquatic Resource Education, under the Sport Fish Restoration Act, is part of a federal grant program and, as such, must operate within a standard set of federal rules, regulations and procedures. Certain documents are required for a state to participate in the Federal Aid program. A grant proposal must show that the proposed work is eligible and meets the standards for approval under the Sport Fish Restoration Act. A grant agreement is needed to obligate Federal funds so a state can be reimbursed for the work it conducts. These documents must be approved before the work is started. A performance report is needed after the completion of the grant agreement to document what work a state actually accomplished during a particular grant agreement period annually, as required.

Grant Proposal

Purpose: A long-term plan proposing work to be completed. When approved, shows that proposed work is legal under the act.

Submitted generally every 3-5 years.

Grant Agreement

Purpose: Documents terms and conditions of the grant and obligates Federal share of estimated project costs. When approved, state can begin work and incur costs.

Submitted annually--throughout duration of effective period for grant proposal.

Performance Report

Purpose: Documents progress of work toward achieving project objectives.

Submitted annually, within 90 days after the grant agreement closes.

This chapter defines each of these grant components using examples from a variety of acceptable approaches. Considering the scope and magnitude of aquatic education nationally, it is simply not possible to provide examples of every acceptable option available in planning and documenting a project. We have highlighted some of the "best practices" currently in place, but for the most complete picture, contact your agency's State Federal Aid Coordinator before you begin preparing your grant proposal. Your State Federal Aid Coordinator is a valuable asset to your aquatic education project. It is the coordinator's job to ensure that your project complies with federal regulations, that documents are submitted on time and in the proper format, and that all requirements for submission are met.

Grant Proposals

The grant proposal includes the Application for Federal Assistance, the Project Statement and a series of supporting documents as listed below. Generally, these documents are prepared by the Aquatic Resource Education Coordinator and the State Federal Aid Coordinator.

The ARE Coordinator generally prepares...

Project Statement
- need(s)
- objective(s)
- results/benefits
- approaches
- location
- estimated cost

The State Federal Aid Coordinator generally prepares...

Application for Federal Assistance **(AFA or Form 424)**
Assurances
State Clearinghouse **(E.O. 12372)**
Documents Supporting Compliance Requirements **(See list at end of chapter.)**

The Complete Federal Aid Grant Proposal includes:

1. The standard one-page **Application for Federal Assistance** (AFA). The SF424 form generally is filled out by the State Federal Aid Coordinator.

2. The **Statement of Assurances** is the standard form in which the state agrees to comply with all applicable laws outlined in this statement. It is signed by the designated state administrator.

3. **Documentation of Compliance with Federal Executive Order #12372**, referred to as the state clearinghouse process. This is the state review process by which state and local officials can review proposed Federal activities, including the award of Federal grants. This is handled by the State Federal Aid Coordinator.

4. **Supporting Documents** addressing any other compliance requirements necessary for your project. (See list at the end of this chapter.) Your State Federal Aid Coordinator will help you with this aspect of your project.

The four documents listed above are combined with the Project Statement and are submitted to the FWS Regional Office for review and final approval. (See below for an explanation of the approval process).

A Grant Proposal is generally effective for a period of three to five years, and represents your agency's long-term plan for implementing an Aquatic Education Project. Allow yourself plenty of time to produce this plan and obtain the necessary agency review and approval. The proposal should be submitted to the U.S. Fish and Wildlife Service at least 30 days before funds are needed. It is not uncommon for states to dedicate an entire year to conducting needs assessments of key publics and to talking with agency personnel to establish project objectives and write the project statement. This project statement is the plan that reflects the work you intend to accomplish. Aquatic education dollars can be used to support staff and materials needed to do the assessment work both to develop the original project statement and to modify it (evaluate) when renewing a proposal.

When renewing a Grant Proposal (generally called a Continuation on the AFA form) the agency needs to complete all these same components as well as a report on how well the current grant has progressed toward accomplishing project objectives.

Your regional FWS Aquatic Education Specialist can be a great resource in the preparation of the Grant Proposal. Involving this person early in the process can eliminate delays after you submit the grant for approval.

For a Grant Proposal to be approved, all of the above documentation must be completed and the project has to be determined by the FWS Division of Federal Aid to be within the allowable 10 percent cap, eligible for funding, and substantial in character and design.

The FWS Grant Proposal Review Process

When an aquatic education grant proposal arrives at your regional FWS Federal Aid Office, it is logged in and cleared through Fiscal Services to ensure funds are available and that the request is within the 10 percent cap. It is then given to the staff person designated to handle Aquatic Education grants (called the FWS Aquatic Education Specialist for the purposes of this guide). It is the responsibility of this person to determine if the proposal is eligible under the provisions of the Sport Fish Restoration Act and whether it is substantial in character and design, the basis for recommending approval to the regional chief of Federal Aid. A project could be eligible for funding but not approvable if it is not designed well. Working closely with your State Federal Aid Coordinator and Regional Aquatic Education Specialist as you develop your proposal can help ensure good project design.

Eligibility

The definition for eligibility, under Section 8(c) of the Sport Fish Restoration Act, reads as follows:

> *"Each state may use not to exceed 10 per centum of the funds apportioned to it under section 4 of this Act to pay up to 75 per centum of the costs of an aquatic resource education and outreach program for the purpose of increasing public understanding of the Nation's water resources and associated aquatic life forms."*

Aquatic resource education projects are concerned with aquatic systems and sport fisheries. The wide range of program strategies highlighted in Chapter 6 reflect the fact that agencies develop approaches tailored to fit the changing needs of their state's aquatic resources and key publics (see Chapter 6.)

What is Outreach?

The terms "education" and "outreach" often are used to describe the same sorts of activities; however, there are distinct differences in the two as defined by the Congress and FWS Federal Aid. Aquatic resource education is defined above in the legislation. (**See Eligibility section**.)

For the purposes of the Federal Aid program, outreach has a specific definition:

> *A the time this document went to press, the definition of outreach, as applied to the aquatic resource education program, was still in draft form. The definition will be provided in a replacement page to this document upon finalization.*

Outreach is an eligible activity within all Federal Aid grant programs, under the provisions for public use of, and benefits from, fish and wildlife resources (**50 CFR 80.5 (a)(1)**, **80.5 (b)(1)**). First, Federal Aid grants can include an outreach activity for example, a publication about the project, its benefits and how Federal Aid contributed to that project. Outreach can also be an independent grant; for example, a state agency could that incorporates a variety of outreach activities to inform their publics about the Federal Aid programs and their benefits into a separate grant.

One important point: "Public relations activities for the purpose of promoting organizations or agencies, including publication of magazines, displays, exhibits, etc.'" remain ineligible for Federal Aid funding (**Part 521, 1.8A, Federal Aid Handbook**). Contact your FWS Aquatic Education Specialist and State Federal Aid Coordinator for help with outreach.

Substantial in Character and Design

Having established eligibility, reviewers then apply the test of "substantial in character and design" as described in the FWS regulations. A Federal Aid project is considered substantial in character and design when it:

(a) identifies and describes a need within the purposes of the relevant act;

(b) identifies the objective(s) to be accomplished based on the stated need(s);

(c) uses accepted fish and wildlife conservation and management principles, sound design, and appropriate procedures; and

(d) will yield benefits that are pertinent to the identified need at a level commensurate with project costs. (**50 CFR Part 80.13**)

Aquatic education projects support accepted fish and wildlife conservation and management principles, but the effectiveness of that support depends on the use of acceptable educational approaches and strategies.

Further guidance can be found in the Federal Aid Handbook, which also requires that proposals provide for:

- the tracking of costs and accomplishments related to the project, and

- monitoring, evaluating, and reporting accomplishments of the project objective. (**Section 522 FW 2.5B, Federal Aid Handbook**)

The section below offers many suggestions about how to develop a well-designed project that will meet these standards.

Building the Project Statement

This section takes you through the step-by-step development and preparation of a project statement. The project statement is a description of the aquatic education project in terms of the need(s), objective(s), expected results or benefits, approach(es), location and the estimated costs. It generally is prepared by the State Aquatic Education Coordinator.

1. Need(s)

This is where you explain why your agency needs an ARE Project. What is occurring with the resource, the agency, or the various publics, related to water resources and associated aquatic life forms, that needs attention? Do not use this section to describe what you want to do or how you will do it. Instead, explain issues, concerns or opportunities facing your state's aquatic resources that education could help address. Although not required, it is recommended that you include your agency mission statement in this section, to put your program in the larger context of your agency's responsibilities.

Establish The Need--Looking For Clues in All the Right Places

Establishing need is not as difficult as it might seem. There are many places to find good clues about issues or opportunities that exist. Review your agency's mission statement, strategic plans and studies and interview other agency staff, such as biologists, educators and administrators. You also can talk with extension agents and university professors; survey anglers and boaters (or get copies of surveys already done); and get input from teachers, youth group leaders and other publics. Basically, any agency or entity having an interest in aquatic resources or sport fishing is a potential source for need-related information. In explaining how you identified these needs, you can even include statistical data if you have it. Remember, aquatic education is a resource management tool and should be used to accomplish resource management objectives.

Deciding Which Needs to Tackle

You will not be able to tackle all the needs facing your states's aquatic resources, so how do you decide which ones to address through aquatic education? Try to get a sense of the priority of these needs from your agency. Talk with fisheries biologists, constituent groups and colleagues in other divisions in your agency. Next, look at efforts that already exist. Are any of these needs being addressed through current programs in your agency; other state, county and local agencies; school systems; universities; recreation organizations; or industry efforts? Avoid duplication! Are there issues and needs no one is addressing?

Are current efforts spread appropriately among different publics, age groups, geographic locations and need, or is there too much effort concentrated in some areas/age groups? Your priority list may end up with a mixture of both long- and short-term needs.

PROJECT STATEMENT

1. need(s)
2. objective(s)
3. results/benefits
4. approaches
5. location
6. estimated cost

Prepared by
aquatic education coordinator

2. Objective(s)

Objectives describe measurable changes in knowledge, skill level, attitude or behavior in relation to an identified need and yield pertinent benefits throughout a specified period of time.

In education, objectives generally describe what the people you are targeting (classroom student, teacher, course or clinic participant, trout anglers, youth group member, hatchery visitor, education center visitor) will be able to do after participating in your program (sometimes called performance outcomes). Will they have an increased knowledge of basic fish identification and habitat needs? Will they be able to safely bait a hook, tie a fly and cast? Will they be able to distinguish which actions generally are practiced by an ethical angler? Will they be able to tell you what watershed they live in or why wetlands are important to fish, wildlife and people in your state? Will they demonstrate a new stewardship ethic toward natural resources by participating voluntarily in a stream restoration project or a conservation commission meeting? When writing objectives, think about what you want your target audiences to do differently.

– **Measurable:** Achievable objectives are measurable. They tend to be written with specific action words that show that the target group will be able to:

demonstrate	contrast	sketch
describe a function	design	use
identify steps	analyze	formulate
operate	interpret a diagram	apply
write	compare	define
solve	explain a process	

– **Not easily measurable:** It will be difficult to measure the target group's ability to demonstrate the following goals:

appreciate	learn	faith
know	understand	establish
like	enjoy	

Good example: At the end of this training, each participant will be able to demonstrate a basic cast, identify four safety measures to practice while fishing, and explain the five basic habitat requirements of fish.

Poor example: At the end of this training, each participant will understand the basics of fishing and aquatic ecology.

– **Yield pertinent benefits:** Make sure it is clear that these benefits will help address one or more of your agency's stated needs.

– **Identifiable endpoint:** Note at what point you expect the desired changes in knowledge, skill level, attitude or behavior to occur. For example: "At the end of their 3-day course, participants will...,"

"By December 1999...," "Within one year of their teacher training course, teachers will..."

– **Reality check:** When you've written an objective, ask yourself if you can achieve this objective within your time frame, staffing and budget constraints. If not, revise it.

3. Expected Results and Benefits

This section is essentially the goal statement for your program. What do you expect to happen as a result of this program? How will this benefit the resource? (Refer to your needs). When possible, include expected results and benefits that can be measured.

4. Approach(es)

Approaches are the components, strategies, methods or tools of your aquatic education grant proposal. Each approach consists of one or more activities that will help you achieve your objective(s). This is where you describe what you are going to DO to achieve the objectives. What actions are you going to take, how are you going to carry them out, who is your target audience, who will do the work and when will the work be done? Remember, the activities described in this section should tie in to the objectives, which in turn should address aquatic resource needs.

Note that a "Fishing Skills and Aquatic Ecology" course with a curriculum, trained volunteer instructors and a fishing experience is an approach. Listing "Volunteers" by itself is not an approach.

Consider these points when designing your program:

1. *Who is your audience?*

   (residents of a certain watershed, 10th-grade biology students, trout anglers)

2. *Why are they your audience?*

   (nonpoint source pollution is a major water quality problem in this watershed, adversely affecting the fisheries; 10th-graders have a required unit on fish and wildlife, and the content is negotiable with the school systems; there is a need to increase the survival rate of large catch-and-release brown trout).

3. *What are the most effective teaching techniques to reach this audience?*

   (a watershed guide and presentation to town conservation commissions; curriculum material designed in conjunction with a team of teachers; a series of catch-and-release workshops plus written hand-out material). Regardless of the audience you're working with, you may need to use a variety of different methods (lectures and hands-on activities, written material and visual aids such as photographs or videotapes, special events and field projects).

4. *What programs already exist that address this issue? (objective and need)*

   (extension service publications and hazardous material collection days; a school field trip to a hatchery; catch-and-release brochures from a neighboring state that could be adapted to your state)

5. *Identify the gap and design your program to handle it.*

   The nature of aquatic resource problems and opportunities encourages innovation and creativity in developing approaches. Your agency must decide the special characteristics of your project. Keep in mind that the approaches you choose should be educationally sound, appropriate for the target audience, and should yield benefits pertinent to the objectives.

With objectives written and in hand, it's time to go tool shopping. Many states have similar objectives and have developed approaches that also may work for you. Some of these approaches are described in Chapter 4 and Chapter 6. But don't limit yourself to these; be innovative. Remember, approval of any activity within your grant proposal depends on whether or not the project, product or materials you select will accomplish your objectives, not on its success in other states.

5. Location

This is a description of where the work will be done. It is important for two reasons: First, the information is compiled by the U.S. Fish and Wildlife Service and is provided to interested congressional representatives who are interested in what's going on in their districts, industry partners and others, on request. Second, it shows that you're conducting your work where it makes sense. (We would tend not to build a big visitor center in a remote part of the state that has limited road access.) If the activity is taking place in a particular region of the state, list it. If the effort will be statewide, indicate that in this section. When building or developing a site, describe the specific location.

6. Estimated Cost

List the estimated cost of conducting each approach. If approaches include numerous activities, estimate the cost for those activities. Understandably, this is only an estimate, as it is difficult to project costs for a multi-year period. Although these are only estimated costs, they should be realistic and should reflect the actual level of funding to be allocated to aquatic education by your state.

Making realistic cost estimates can be a challenge even for experienced ARE coordinators. You can begin by talking with your agency's contracting, budget and purchasing staff. They have experience in these areas that will guide you through a logical process to produce realistic estimates. You also may want to review aquatic education projects from other states. Be sure to look at states with similar geographic or economic characteristics. Examine your state’s performance reports from other aquatic education projects because they may contain actual or estimated costs for activities you're considering. Your State Federal Aid Coordinator and regional FWS Aquatic Education Specialist usually have a lot of experience in this area and often can give you copies of individual state grant proposals and past performance reports.

Federal Share

Seventy-five percent of all allowable costs under the Sport Fish Restoration Act, up to 10 percent of your state's apportionment, are reimbursable, provided that the costs are reasonable and necessary to accomplish project objectives and are not included in the cost of any other federally-funded activity.

State's Matching Share

States are responsible for at least 25 percent of the total allowable project costs. This 25 percent cost-sharing or matching may be in the form of either cash paid by the state from any non-federal source, or through the value of third-party in-kind contributions. (See below).

In-kind Contributions

"In-kind" is a term for the value of noncash contributions or services to the project. In-kind contributions can be used instead of all or part of a state's 25 percent matching share. To qualify as in-kind, these contributions must be necessary and reasonable for accomplishment of project objectives. Examples of items that can be used as in-kind matches include: personal services (people donating their time); donated contractual services, such as the waiver of an equipment rental fee; donated materials and supplies, such as building materials and classroom supplies; equipment, such as rods and reels; or donated real property such as land for construction of an aquatic education center.

If in-kind contributions will be used as a state's matching share, the Grant Proposal or Grant Agreement should include a description of the contribution and the valuation method that will be used. In addition, the state must keep documentation (a written record, for audit purposes) supporting how the value was determined and the actual; in-kind received. Contact your state Federal Aid Coordinator for additional information and guidance about using and documenting in-kind contributions.

Some Examples

Donations and Donated Labor: A state used Sport Fish Restoration (SFR) funding to design and produce 40 porcelain enamel full-color interpretive signs, encouraging visitors and sport anglers at rocky intertidal areas to conserve intertidal animals. The signs and mounting stands to erect them cost $25,000. SFR funds were used to pay half this amount, with the remaining $12,500 coming from donations. This amount was used as in-kind match, spread throughout the 10-year projected life of the signs ($1,250 per year).

The signs were erected mostly on land administered by the state's parks department. The parks department agreed to erect 35 of the signs. This cost was estimated as follows: 35 signs X 4 hours of installation each X $15.84 per hour labor (calculated using the state's per-hour rate plus benefit amount for a park technician) X 10 percent (the life of the signs were estimated at 10 years, so 10 percent per-year depreciation) equaled $222 and used as in-kind match.

Calculating the Per-Hour Value of Volunteers: A state uses volunteers as angler education instructors, as angling clinic instructors and as organizers for a statewide event. To calculate the value of these services, the state uses what it would have to pay an employee to do the same job, using the state's pay schedule and benefit costs. Finding an exact match to the kind of work and responsibility level volunteers are doing often is difficult. In this example, an average of two different positions was used for part of the calculation:

- Education Program Assistant: Midrange salary--$1,605 per month. Provides support to educational program staff, coordinating elements of programs or projects and assisting with the planning, implementation and evaluation of the program.

- Agency Program Trainer: Midrange salary--$2,604 per month. Assesses training needs and develops, conducts and evaluates program-specific training courses and on-the-job training to enhance achievement of program goals and mission of the agency.

Justification: The appropriate level was determined to be a medial salary level between these two classifications. The Education Program Assistant is always supervised and directed, but Angler Education Instructors and Special Event Coordinators work without direct supervision, tailoring and adapting basic materials and policies to fit their own unique situations. Although both of these volunteer positions are not totally goal-driven, they require supervising students and participants, working independently with local government and citizen groups, and making program decisions. By averaging the salary for these two classifications, a salary of $2,104.10 was used as an approximate value for volunteer time in the program. When the cost of benefits is added, a monthly value of $2,946.30 or $18.41 per hour results. This rate is used in valuing Angler Education Instructor and Special Event Coordinator positions.
The rate for a mid-range Educational Program Assistant was used for Free Fishing Day Clinic volunteers ($1605 per month plus benefits equals $2247 per month or $14.04 per hour). This level closely matches the tasks and responsibilities of these volunteer positions.

The total hours donated by volunteers are recorded, including actual event or class time, travel time and preparation/administration time, and the rates above are applied:

- **S** 80 (number of courses per year) X 22 (number of hours per course) equals 1,760 hours per year X 2 (number of instructors per course), or 3,520 hours X $18.41 per hour results in $64,803 in an in-kind match.

Donated materials: A state receives 25 donated oxygen test kits from a local manufacturer for a watershed education program that includes water quality testing and macroinvertebrate surveys. The suggested retail value of the equipment is $1,000 (25 X $40 each), which can be used as in-kind match.

Another state receives 20 used and repaired rods from a local fishing club. The cost for new rods of similar quality, on average, is $35 each, or a total of $700. The life of the rods is about five years, or about $140 per year. The approximate life of the used rods is two years, so 2 X $140 equals $280, which can be used as in-kind match.

The above examples are just a few of the methods to determine the value of in-kind matching funds. The key is to keep good records and apply well-thought-out justifications for the rates you use.

Program Income

Program income is revenue received by a state that is generated by a Federal Aid grant-supported activity or earned only as a result of the Grant Agreement during the grant period. Income-producing activities must be consistent with the purpose of the grant and incidental to the accomplishment of that purpose.

The following are examples of potential income-producing activities, often associated with aquatic education projects, that may or may not result in program income:

- sale of guidebooks and manuals;
- admission and registration fees to facilities and workshops;
- sale of equipment or supplies; and
- rent or sublease of facilities (offices, aquarium).

If your aquatic education project is expected to produce program income, your Project Statement must contain a statement of the source, estimated amount and proposed use of the income. (See **Federal Aid Handbook, 522 FW 1.14A**.) The receipt and expenditure of program income must be documented in the state's financial records in the same manner as any other grant costs.

Program income is a very complex issue that cannot be addressed fully in this guide. Consult with your state Federal Aid Coordinator if you anticipate that your project may involve program income.

Figure 3. Example of Estimated Costs for a Five-Year Aquatic Resource Education Project. This example shows a variety of approaches being used.

ESTIMATED COSTS

Approach and Activities	Year 1	Year 2	Year 3	Year 4	Year 5
Angler Education					
1. Catch-and-release workshops**	11,000	12,000	13,000	14,000	14,000
2. Signs/posters/flyers for catch-and-release areas	11,000	8,000	9,000	9,000	5,000
3. Catch-and-release Public Service Announcements	1,000	1,100	1,200	1,300	1,400
Subtotal:	**23,000**	**21,100**	**23,200**	**24,300**	**20,400**
Aquatic Resources Interpretation					
1. Site-specific hatchery exhibits (4)	0	0	75,000	20,000	10,000
2. State fair exhibit about salmon restoration	12,000	0	0	0	0
3. Traveling salmon exhibit	10,000	1,000	1,000	2,000	1,000
Subtotal:	**22,000**	**1,000**	**76,000**	**22,000**	**11,000**
Wetlands Education					
1. State magazine article on wetlands losses and values	0	15,000	0	10,000	0
2. Land use planner workshops (25) *	75,000	0	0	0	0
3. Nonpoint source pollution posters (250,000)	0	65,000	0	10,000	10,000
Subtotal:	**75,000**	**80,000**	**0**	**20,000**	**10,000**
Subtotal for all approaches:	120,000	102,100	99,200	66,300	41,400
In-kind match:	35,000	----	----	-----	----
Program income:	500	500	500	500	500
Project total:	154,500	101,600	98,700	65,800	40,900
Federal/state share:	115,875/ 38,625	76,200/ 25,400	74,025/ 24,675	49,350/ 16,450	30,675/ 10,225

* **In-Kind Match:** Two professionals from outside the agency will donate their time to teach 25 Land Use Planner Workshops. The value of their services (salaries) will be used to meet the state's 25 percent match. That value is $35,000 (estimated at 350 hours @ $100/hour)**.**

** **Program Income:** A $2 fee will be charged to cover the cost of the workbook provided at the Catch-and-Release Workshop. The estimated total income of $500 (250 copies @ $2 each) will be shown on the Grant Agreement form and will be deducted from the project costs.

Grant Agreements

Although the Grant Proposal describes the aquatic education project in detail for a multi-year period, the Grant Agreement outlines the work and associated costs for a single year within that period and, when approved, officially obligates the money. One Grant Agreement is submitted each year of the project. The Grant Agreement summary is simply a schedule sheet (See Figure 4.) that is submitted along with the standard Grant Agreement form. The Grant Agreement form is prepared by the State Federal Aid Coordinator, and the Grant Agreement summary is usually prepared by the ARE Coordinator.

Note on Figure 4 that not every approach, or every activity within each approach, will be active every year.

Figure 4. Grant Agreement Summary

State: XXXXXX
Project Number: F-43-AE-4
Project Title: Aquatic Resources Education Program
Period covered: Month/Day/Year to Month/Day/Year (usually one calendar or state fiscal year)

Approach	Unit	Total Cost
Angler education		
1. Workshops	50 workshops (workbooks, site rental and mileage)	$11,000
2. Signs	20 signs (develop and fabricate)	$8,500
Posters	1,000 posters (develop, print and distribute)	$2,000
Flyers	1,500 flyers (purchase and distribute)	$500
3. Public Service Announcements	2 PSAs (develop and distribute)	$1,000
ARE Interpretation		
1. Hatcheries: inactive		
2. State fair exhibit	1 exhibit (design, build, staff and store)	$12,000
3. Traveling exhibit	1 exhibit (design, build and mileage)	$10,000
Wetlands Education		
1. Article: inactive		
2. Workshops	25 Land Use Planner workshops (develop teaching and audio-visual materials, site rentals, coordination meetings, mileage)	$75,000
3. Posters: inactive		
Subtotal for approaches		$120,000
In-kind match:		$35,000
Program income:		500
Project total:		$154,500
Federal/state share		$115,875/38,625

Providing this level of detail on the funded projects helps the FWS Aquatic Education Specialist understand specific activities to be accomplished during this grant segment. It also provides a basis for determining cost effectiveness and assessing the reasonableness of costs.

Amendments to Grant Proposals and Grant Agreements

Occasionally, you may need or want to make changes to your project. To determine if an amendment is necessary, consult your State Federal Aid Coordinator. Bear in mind that amendments must be submitted and approved before the expiration date of the Grant Proposal or Grant Agreement and before any costs related to the changes are incurred. Use these basic guidelines for amendments:

Amend a Grant Proposal if:

- you need to add, delete or modify a project objective;
- you need to extend the time period covered by the proposal;
- there is a substantial increase in cost; (The rule of thumb is greater than 10 percent, but consult with your State Federal Aid Coordinator to see if it is necessary) or
- there is a change in key personnel; (Who's "key"? Check with your FWS Aquatic Education Specialist so you don't create an unnecessary amendment.)

Amend a Grant Agreement if:

- you need an increase or decrease in Federal Aid funds obligated on the Grant Agreement;
- you are revising the Federal share (for example, reducing the Federal Share from 75 percent to 50 percent); or
- you need to change the agreement period.

What if you're adding or deleting an approach in your project? It's generally a good idea to discuss the proposed change with your FWS Aquatic Education Specialist to determine if an amendment to the Grant Agreement and/or Grant Proposal is appropriate. Remember that the approved documents on file with FWS and your agency ensure that all the activities in your program meet the legal requirements for eligibility and substantiality. To prevent potential problems, when increasing or decreasing the scope of work of the project by adding or deleting one or more approaches, it may be the best practice to amend your grant (**50 CFR Part 80.11a**).

Performance Reports

Performance Reports are required at the end of each Grant Agreement period (usually one year) and are due at your regional FWS Federal Aid office within 90 days of the closing date of the Grant Agreement. In most cases, performance reports are forwarded to the FWS by your State Federal Aid Coordinator. If this is not the case in your agency, your Federal Aid Coordinator should review the performance reports to provide any helpful comments or assistance and to record that it is being submitted.

According to the Federal Aid Handbook, the performance report must include the following:

1. A description of progress made through the end of the Grant Agreement period toward accomplishment of the stated objective(s) for the project. Explain any deviations that may impact on accomplishment of the stated objective(s).

2. A summary of work completed during the Grant Agreement period related to work identified in the project statement in the Grant Proposal and Grant Agreement.

3. Location(s) of where work was performed (include the site of any education facility).

4. Costs incurred during the Grant Agreement period (Note: Although the final figure will be prepared by your fiscal office, provide an estimate of the total cost for each objective with a breakdown by approach, if possible.)

The format for this report is flexible. If you need to write an annual report for your agency and can write one report that will satisfy both FWS and your agency, so much the better. This report is also an opportunity to demonstrate your accomplishments to members of the sport fishing community because this information is made available to them.

It's extremely helpful if you also can provide FAIRS data in your report. **(See below.)**

Objectives as the Framework

One way to address #1 and #2 above is to use the project objectives as your framework. List the objectives addressed in the Grant Agreement period, report the progress on each and assess that progress. Were you right on target? Did one approach not work, or did it work better than planned? Are you behind schedule because of staff cuts? It is helpful to show a clear connection among the objectives, approaches and accomplishments. This is where you also should indicate the progress and results of your evaluation efforts. In a nutshell, show how, by accomplishing the planned activities, you moved closer to or reached your objective. (**See also Chapter 5**.)

The Performance Report also is used to highlight any discoveries, unanticipated benefits, new partnerships or awards that occurred during the year. Put it in writing so others may benefit from your discoveries and experiences.

Recommendations for Future Work

Although not required, you can use this report to note your recommendations on the project. Are you going to keep going with the five-year plan as laid out; do you want to add or eliminate something; have your agency's needs changed; do you need different, less expensive or more effective approaches? In general, what did you learn this year about your project and how it is progressing toward meeting its objectives? What do you want to do as a result of what you learned--keep going, change, adapt, more of the same? What do you think you should do now?

FAIRS

The Federal Aid Information and Reporting System (FAIRS) is a national information data base that includes all state projects, including Aquatic Resource Education, that is supported and maintained by the Division of Federal Aid. It is used by congressional representatives, states, industry partners, conservation groups and the public to get basic information about program accomplishments. FWS staff enter project objectives from your Grant Proposal and the accomplishments of your project, which are taken from the performance report.

There are currently five categories in FAIRS for reporting activities under Aquatic Resource Education:

1. **Courses and clinics**

   Data needed: number of instructors trained; number of students trained (if possible), cost incurred

2. **Education/information materials**

   Data needed: number of items; cost incurred

3. **Facilities development and maintenance**

   Data needed: number of sites, cost incurred

4. **Site development (displays, trails, etc.)**

   Data needed: number, cost incurred

5. **Planning and surveys (evaluation)**

   Data needed: cost incurred

Although not required, providing the above information for FAIRS as a part of your annual performance report ensures that your project accomplishments are portrayed accurately.

Compliance Requirements

Introduction

This section provides a brief list of the major laws and orders with which Sport Fish Restoration projects must comply. This can be a complex process, so consult with your State Federal Aid Coordinator for these requirements when you begin planning your project. The State Federal Aid Coordinator is responsible for providing technical assistance to ARE Coordinators to ensure compliance with all applicable federal laws and regulations based on information provided in the Federal Aid Handbook. This listing is included here only to help make the ARE Coordinator and partners aware of the types of constraints and reviews that affect the ARE Project Grant Proposal approval process.

Americans with Disabilities Act (ADA)

The ADA forbids discrimination on the basis of disability in much the same way earlier civil rights legislation made it illegal to discriminate on the basis of race or sex. This act is applicable to public and private employers, transportation systems, public accommodations and telecommunications systems.

Under Title II, all state and local government facilities, services and communications must be accessible consistent with the requirements of **Section 504 of the Rehabilitation Act of 1973**.

What does this mean? Essentially, all existing and new ARE facilities, services and projects must be accessible to people with mobility, hearing, visual and learning disabilities. Compliance with these requirements should be a concern in the development of ARE projects, materials and facilities from the very beginning.

Title VI of the 1964 Civil Rights Act

This title prohibits discrimination based on race, color or national origin in any "program or activity receiving Federal financial assistance."

What does this mean? All ARE activities must be designed and implemented so they do not directly or indirectly discriminate in violation of this act.

Section 504 of the 1973 Rehabilitation Act

Ensures that no qualified disabled person shall, on the basis of disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any project or activity receiving Federal financial assistance.

What does this mean? This is similar to the ADA and is applicable whenever Federal dollars are being used by the agency for any program. All ARE facilities, services and projects must be equally accessible to people with mobility, hearing, visual and learning disabilities.

All facilities, including buildings and displays, must be designed and built to meet the minimum Federal accessibility standards for people with visual, hearing, mobility or learning disabilities.

1975 Age Discrimination Act

Prohibits discrimination on the basis of age in projects or activities receiving Federal financial assistance.

What does this mean? For example, people cannot be prohibited from serving as volunteers in an ARE project based on age alone.

Title IX of the 1972 Education Amendments

Prohibits discrimination on the basis of sex in any education project receiving Federal financial assistance.

What does this mean? Educational ARE projects must comply with this act.

1972 Coastal Zone Management Act

The act is intended to "preserve, protect, develop and, where possible, to restore or enhance the resources of the nation's coastal zone..."

What does this mean? This act applies to proposals to construct ARE facilities in a coastal zone.

Executive Order #11987, Exotic Organisms

This Order provides that Federal agencies shall discourage states from introducing exotic species into natural ecosystems of the United States. In addition, Federal agencies will restrict the use of Federal funds for the purpose of introducing exotic species into ecosystems outside the United States.

What does this mean? States are discouraged from introducing exotic species into lakes and streams for ARE fishing projects purposes.

1973 Endangered Species Act

Actions funded under the Federal Aid Programs must not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the habitat of the species.

What does this mean? Sites proposed for construction of ARE facilities must be surveyed by the state to determine potential impacts on threatened or endangered animal and plant species that may be in the area.

1969 National Environmental Policy Act

This act, referred to as NEPA, requires that every proposed Federal action be examined to determine the effects (beneficial or adverse) it will have on the human environment and that the findings be considered in decisions regarding its implementation.

What does this mean? This act applies to all ARE activities but especially to proposals to construct ARE facilities. However, most activities conducted under an ARE project normally are excluded categorically from compliance with this act. This can be a complex process, so consult with your State Federal Aid Coordinator for these requirements when you begin planning your project.

Floodplains and Wetland Protection Executive Orders

Federal Aid funds may not be used for projects affecting floodplains or wetlands unless there is no practical alternative outside the floodplain or wetland and only if actions are taken to minimize the adverse effects.

What does this mean? These orders apply to the construction and renovation of ARE facilities that may be located in or potentially may affect a floodplain and/or wetland.

1985 Animal Welfare Act

The purpose of this act is to require the humane treatment of animals (exclusive of fish) used in research, experimentation, testing and teaching.

What does this mean? Although this act specifically excludes fish from its requirements, fish and other live organisms used in ARE projects should be treated humanely for the sake of good public relations and professional ethics.

1982 Coastal Barriers Resources Act, ***as amended by the 1990 Coastal Barrier Improvement Act***

The purpose of these acts is "...to minimize the loss of human life, wasteful expenditure of Federal revenues and damage to fish and wildlife and other natural resources associated with coastal barriers..."

What does this mean? Applies to ARE facilities proposed for construction in a coast zone.

1966 National Historic Preservation Act

Federal agencies may not approve any grant unless the project is in accordance with national policies relating to the preservation of historical and cultural properties and resources.

What does this mean? Applies to construction sites for ARE facilities that will result in soil-disturbing activities. It also applies to the removal or renovation of historic buildings. Compliance with this act can be complicated and expensive if a site survey is required by the State Historical Preservation Officer prior to conducting work at the site.

1970 Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended

Prices to be paid for land or interests in lands must be fair and reasonable (except when the price is fixed by law or when the lands are to be acquired at public auction or by condemnation and the value determined by the court). People displaced from their homes, businesses and farms must receive relocation services, compensation and fair, equitable treatment.

What does this mean? This act applies to the acquisition of real estate (land and buildings) to be used for ARE project purposes.

Debarment and Suspension Executive Order

Executive Order 12549, Debarment and Suspension, directs that persons debarred or suspended by one Federal agency from receiving grants may not receive grants from any other Federal agency.

What does this mean? The state must make sure that potential subcontractors for its ARE project have not been debarred or suspended under this executive order.

1988 Drug-Free Workplace Act

The Drug-Free Workplace Act requires that all grantees certify they will maintain a drug-free workplace.

What does this mean? This requirement applies to the state and all subcontractors of the state who provide goods and/or services for the ARE project.

Restrictions on Lobbying

Prohibits the use of Federal appropriated funds for lobbying either the executive or legislative branches of the Federal government in connection with a specific contract, grant, loan or cooperative agreement.

What does this mean? This requirement applies to the state and all subcontractors who provide goods and/or services for an ARE project. This form must be submitted with every grant agreement with $100,000 or more of federal funding.

Other Compliance Requirements

Refer to the Federal Aid Handbook for additional information on compliance issues not listed in this guide.

Chapter 4: Managing Your Project So It Does Not Manage You

This chapter assists you with the management of your ARE project. Much of the information presented has been gathered from the experiences of ARE Coordinators and from a number of important resources. Notice the word "managing" in the title. The importance of managing your project can't be emphasized enough. Keep in mind that as a project manager, you likely will wear many hats. From purchasing agent, to statistician, inventory control technician, professional educator, equipment repair person, warehouse clerk, and observer--you will do it all. Like it or not, you now are a manager.

Good detailed planning is fundamental to managing your project. Most often it is necessary to outline this information in much greater detail than in the Grant Proposal. For example, if you have decided to use volunteers in your project, the day-to-day or even year-to-year workings of your volunteer program (recruiting, training) may not be a required part of the Grant Proposal, but they are critical to meeting your project objectives. *Most often this is best done as you develop the grant proposal.* However, many ARE Coordinators fail to do this, have inherited projects, or are faced with an ever-growing project. Regardless of where you fit in, the ideas and resources in this chapter should assist you in working to meet your program objectives.

People as Resources

Often, resource agencies consider only the biological and physical resources of the state. However, in aquatic education your biggest resource will be your target audience and those who help you reach that audience. In this section we identify and address the “people resources” you may have available in preparing the project statement and planning of day-to-day project activities. Then with the resources identified, you can begin to see what each may offer as you carry out your project objectives.

Working With Your Agency, Not Against It

Although you may be the only person in your agency to administer the ARE program, don't think you are going to pull this thing off alone. Aquatic Resource Education programs are just one tool an agency uses to deal with aquatic resource problems and challenges. The success of these tools is very much dependent on cooperation throughout the agency.

To that end, many of your counterparts realize the need to establish (or re-establish) a good working relationship with the organization as a whole and several key people, in particular. Whether you are new to the agency or a veteran transferred to this program, these relationships benefit you, the program and ultimately, the resource.

Most of the people within your agency who are immediately critical to your program were introduced in Chapter 2. These include: (1) the State Federal Aid Coordinator, (2) the head of the agency's fisheries programs, and (3) the head of the agency's public education/information efforts. It also will be necessary for you to work with personnel, financial management and other administrative support staff and, if your agency has one, the individual charged with strategic planning. These individuals should be able to provide assistance by identifying needs and target audiences, in addition to suggesting possible approaches. A good working relationship with these people not only will aid in the preparation of the grant proposal, but it is important to the day-to-day operation of the project.

PARTNERS--What are they?

Ideally, you will have an army of staff in your department and endless financial resources at your disposal to carry out your objectives. In reality, however, you probably will have to rely to some degree on other individuals. These individuals may be other people in the agency, or outside the agency, in addition to industry groups or anyone with an interest in the project and its objectives. Often, these parties are referred to as partners. A conservation group that is interested in getting involved would be a partner. Unlike you or the State Federal Aid Coordinator, they are not key links in the project.

PARTNERS--Who Are They?

Any group with either an interest in the resources or the opportunities they provide is a good place to start when looking for partners. Table 1 lists several of the more obvious groups or categories. Chapter 6 includes some more innovative ideas for partnerships.

PARTNERS--What Can They Do?

Most often, states are using partners to carry out a project once it is approved. Examples include any national, state, or local conservation group, serving as a pool of volunteers, or the state park system, working to distribute educational materials.

Partners may be of assistance before you develop or implement your program. For example the American Sport Fish Association, a special interest group or industry group can supply insight or information that will enhance the project. These associations, often called "advisory groups," are used by a number of states to play a role in the development and implementation of the project and its materials. In a number of successful cases, advisory groups have served as test or focus groups for new materials or activities or in program evaluation.

Table 1-- Partners. Here are examples of some common partners:

Category	**Groups**	**Services** **(some are further discussed later in chapter)**
Technical Disciplines	State affiliates with American Fisheries Society, environmental professionals, university professionals	technical review, network, problem identification
Professional Organizations	State teachers organization, any group dealing with volunteers, social organizations, recreation people, organizations serving those with special needs	information network, advisory, pool of volunteers, assembling materials, equipment maintenance
Conservation Organizations	Trout Unlimited, BASS federated clubs, Izaak Walton chapters, any group involved in outdoor or environmental education	pool of volunteers, advisory committee
Tackle Industry	Manufacturers, retailers, distributors	equipment and materials (contribution or discount), marketing and advertising
Other Industry	Utilities (electric, gas, water), Media (TV, radio, print), large manufacturers	Financial support, advertising
Other Government Agencies	USFWS (coop unit), other Interior entities, Coop Extension, NRCS, Conservation Districts, school districts, other natural resource agencies	advisory committee, information network, pool of volunteers, sites, needs assessments

In the Trenches

While the ARE Project is not analogous to a war, both are won or lost in "the trenches," out working with the target audiences. It is this contact that often makes or breaks an ARE Project. No message or material is any good without a good means of delivering it. There are a number of options available to you. Each should be explored and evaluated beginning early in the grant process and during the implementation of the project. Each option comes with its own set of benefits and drawbacks. For ease of review, approaches with the highest direct costs are discussed first. Direct costs are those directly relating to the accomplishment of the objectives. Obviously, this exploration and evaluation of approaches is essential to the preparation of the Grant Proposal. Look within your agency as well as outside.

Agency Staff

In some states agency employees carry out the bulk of the efforts to meet program objectives. They are the front-line troops conducting the training and setting up the workshops and clinics. Often, this arrangement is ideal because there is a direct connection between the agency and the program. On the down side, hiring new employees or transferring existing employees are luxuries few agencies can afford. As a result, many states use what may be called temporary or seasonal employees. Seasonal staff can be adjusted to meet the program demand.

To deliver the message, a number of states use staff outside the department or section assigned to the ARE Project. For example, law enforcement or other field staff can serve as instructors in an angler education or school program. This often involves other disciplines or perspectives that most add to the project.

This multi-discipline/department approach can present a challenge with time and materials, cost accounting and training. The accounting systems of some states may not allow those outside the project to charge their time to the project. Prior to deciding this option, work closely with your personnel and administrative support staff. It may be easier to sell the idea if you have done your homework about these important financial considerations.

As far as training is concerned, plan ahead. Many coordinators who use employees outside their respective divisions or bureaus recommend that other agency employees involved in the project complete some training exercise, regardless of experience or years of service. This may be the toughest or the easiest audience with which you will work. Knowing your agency and its employees, planning well and marketing the program to others in your agency will make this path smoother.

External Assistance

Many states use people outside the agency to carry out the program objectives under the watchful eye of the ARE Coordinator. Usually, the direct costs are lower when using outside help, and there are other associated benefits. These are discussed in the following two examples:

Contracted Services

Nearly all states contract with individuals or businesses to provide some service. It may be supplying computer equipment or fixing copy machines, but the idea is the same. Rather than incur the costs associated with a full-time employee (salary, benefits, office supplies and space), the state contracts with someone to provide a comparable service.

As an example, one state contracts with individuals to present teacher workshops. These individual contractors (called facilitators) are paid a flat fee for the service and are reimbursed for related expenses. Other states may contract with universities or outside consulting firms to assist with carrying out project objectives. Your direct control of what this provider does is somewhat less than that of an employee and is limited to the terms of the contract. In addition, there may be other regulations dictating how the service is provided. Your legal and purchasing staff should help you through this process. In addition, the State Federal Aid Coordinator needs to be consulted if this option is considered. The specific laws and regulations addressing this subject are complex, and contracts must be addressed in the Grant Proposal project statement.

If you are considering this option, keep in mind that awarding contracts can be a long and tedious process. Most often, you must go through a bidding process that includes bid evaluation and other administrative policies and procedures.

Volunteers

For the purposes of this guide, people who give of their time with little or no monetary compensation (except for mileage, meals, etc.) are defined as volunteers. You or your agency have little or no experience with volunteers, or you may have a long history. Regardless, the subject of volunteers and their management is well researched and documented. Many of these resources are listed at the end of this chapter. In addition, in most major cities there are volunteer service organizations. These groups volunteers with opportunities, and many provide training and support for volunteer management.

Volunteers serve in varying capacities in state ARE programs. Some states use volunteers as the front-line contacts with the public; the state trains them and coordinates their efforts. Others take advantage of volunteers to supplement staff at large events. Regardless, there is little difference between a volunteer or a paid employee who conducts a program; the recruitment and management of each is similar.

When using volunteers, a complete job description must be developed including the responsibilities and tasks for this "position." Your state agency can claim only fair and reasonable cost associated with the volunteer's workt. For example, if volunteers are used to assemble materials, their time is worth what it would cost the agency for that job.

These job descriptions are best prepared with the input of your agency's personnel administrators and the state Federal Aid Coordinator. It is important that the jobs volunteers do aren't in violation of any labor agreements or agency policies. Your personnel administrators will provide insight into your agency's policies regarding volunteer liability and worker's compensation laws. Often, volunteers will want to know if they are covered by these laws while working on the ARE project. Be certain of your agency's policies and position on this important consideration BEFORE you begin to recruit volunteers.

Although working with volunteers can be rewarding, there are several disadvantages to using volunteers. Like supervising regular employees, managing volunteers is a full-time job. Often, the manager is left with little time for other project components. Just like the management of any resource, good planning and an understanding of the methods pay off in the long run. Some volunteer management methods and ideas are discussed later in this chapter.

If your agency has little experience with volunteers, or past experiences have been poor, you may have to create support for using volunteers. Internal support is vital, so plan on spending time assessing staff experience and attitudes about volunteer use.

The Three R's of Volunteer Management

Recruitment

Before the recruiting process can begin, it is a good idea to develop a list of tasks that may be appropriate for volunteers. With this list, appropriate job descriptions and responsibilities can be developed. Then you can set out to find people with the experience and talents to fit these descriptions.

One of the best ways to recruit support is to work internally in your agency. Consult the law enforcement and fisheries field staffs. For example, ask if they know someone who might like to help with your program. If you have assembled an advisory group, consider using group members as core volunteers.

Local or regional conservation/fishing organizations also provide a ready pool of people interested in helping aquatic resource education. A brief list of potential partners and ways you can work with them was introduced earlier in this chapter. This list provides a good jumping off point, but try to be innovative in working with outside groups.

Consider a strategic media blitz to solicit specific audiences for help. Investigate the means your agency uses to publicize its other programs. Most likely, a combination of methods is used. These may include press releases, radio or TV public service announcements (PSAs), an announcement in the fishing regulation summary book, or perhaps an article in your agency's periodical publication. You can also target specific audiences by attending that group's regular conferences or meetings and stating your case.

Throughout the recruiting process, be sure to give potential participants a clear idea of what you want from them and what you are looking for. This enables you to find people with the background and interests to help you reach your objectives.

To ensure that you get qualified people, set up some type of screening process. This process gives you and potential volunteers a chance to see if there is a match between their skills and interests and the volunteer job. The references at the end of this chapter explore screening in great detail.

An application should be designed to help you assess the person's background, experience and knowledge. With your agency's reputation at stake, some type of background check is imperative. A criminal records search or other related activity may be conducted by your own law enforcement staff. In most states, several social service agencies that maintain computer networks. Consult with your agency's legal staff before venturing into this area, however, this type of assessment activity may put your agency in an uncomfortable spot.

Ideally, volunteers should go through an interview process. The reasons are obvious, but many states, because of the size or nature of the program, do not interview volunteers. Interviews provide a forum for face-to-face meeting and an opportunity for the exchange of more information, a benefit for both parties.

Retention

Once you have selected your volunteers, you should train them. Training is an investment in the volunteer and the program. Although the level of training will vary depending on the program, all sessions should include: agency background, program background, ARE and Federal Aid in Sport Fish Restoration Program background. You also may need to work to expand applicants' knowledge bases. Most importantly, you must show them the what, why, when and how of the job.

Training should equip the volunteer with the tools and understanding to do the job. The process of skills development continues beyond the initial training session. One way to ensure that volunteers continue on that path is to hold regular meetings. These meetings are used by a number of states to serve as a refresher or even a recertification for their volunteers. The small investment of the ARE Coordinator's time to organize and conduct these meetings can pay a big return. Volunteers often look forward to these meetings and plan other activities around them.

Provide volunteers with an opportunity to take ownership in the program. The meetings provide a forum for feedback and discussion. Volunteers are the ones "in the trenches" and may have insights about potential problems you can solve before they grow and reach your desk. Another way to develop that sense of ownership is to provide uniforms or some way the public can identify them as being part of your program. These symbols, although seemingly insignificant, are important to the people giving their time.

Set performance standards to ensure the quality and integrity of your program. This may be as simple as requiring volunteers to conduct "x" number of programs per year or as complex as having their performance evaluated. You also should communicate with your volunteers regularly and predictably (meetings, newsletters). Inform them in writing of any important changes.

One of the most difficult parts of your job as a volunteer manager will be dealing with "dead wood"--people who, after much prodding, do not deliver. If someone is not performing, ask yourself and them why. Changes in family and career can put a damper on a person's motivation. However, it is important that you treat everyone in your program fairly.

Some states have found that inactivity is sometimes a result of the volunteer having a poor understanding of what is expected. That is, once the training began, and the program became more clear, many volunteers found they weren't interested. Avoid this by providing plenty of detailed information before an individual makes a commitment.

Recognition

Although most people who volunteer are motivated and rewarded just by performing their tasks, their efforts need to be acknowledged. You may provide perks such as patches, hats or other rewards. However, something as simple as a thank-you can go a long way. Recognize their effort with a comparable thank-you--don't nominate someone for knighthood for helping with just a small task. Remember, too, that people can wear only one hat at a time or can use only so many patches. Give more than just goodies--show your appreciation.

Resources: Materials and Equipment

Equipment

Most ARE projects require equipment or materials; and there are several things to consider, including acquisition, distribution, inventory and storage, retrieval and maintenance. Carefully examine your program and its projected needs before establishing how you will take care of the items on this list.

Many ARE Coordinators recommend that you look ahead, beyond the first year or so, when considering what materials and equipment to provide. Keep in mind that whatever you provide now you may need to provide throughout the life of the program. As the program grows, so will the demand for materials and your time. Before determining what materials you will provide, look down the road. The following example should make this idea clear.

Acquisition

If you are like most of your counterparts, this may be the most difficult part of project management. Often, the job may be made easier by good planning and building a local or regionalized network for obtaining equipment and materials. For example, if you need fishing tackle, work with manufacturers or distributors of these products within your state. Most of the major companies have a long history of providing free or heavily discounted tackle.

Listed below are a few key points other ARE Coordinators suggest you consider when purchasing equipment or educational materials:

- Consult the **Common Rule** for some ideas.
- If you purchase expensive items such as vehicles, computers, etc., Federal Aid Real Property regulations require that you keep specific, detailed records. Consult with the State Federal Aid Coordinator about these matters.
- If you are providing water test kits or other such materials, shop around. Talk with your field staff to determine the most accurate, durable materials on the market.
- Purchase enough equipment to meet your projected demand plus 50 percent. This should make it easier to deal with unplanned jumps in interest in your program, budget cuts and other unforeseen circumstances. Keep in mind that approximately 10 percent of your inventory will be lost right off the top each year to attrition, theft and malfunction.
- If you are purchasing educational materials or curricula, try to time your purchases to coincide with the publisher's planned printing. Because printing often costs less per unit when more units are printed, the publisher may pass this saving on to you. In addition, you may be saving warehouse space for the publisher. Work with the publisher of the materials on these matters.

Distribution

This is the most critical and visible part of the program and, by most standards, the least enjoyable aspect. Consider the volunteers' frustration when they do not have the materials needed to conduct the program. How and when you distribute materials will make the program a hit or a flop. In most states, the ARE Coordinator does all the packing and shipping for the program. As you can guess, this eats up valuable time and is a poor use of the coordinator's time and expertise. Using existing agency distribution methods will make your life easier.

States with existing programs use one or a combination of three ways of getting materials and equipment to people:

- *Program level:* Materials are shipped for each individual or group of programs. The materials are requested by front-line staff via order forms or similar requisition. This requires some sort of deadline. Be sure to give yourself plenty of time to pack and ship. Demand is often unpredictable.

- *Regional or local stash:* You establish a local clearinghouse for equipment, such as a regional or field office. Often, problems are encountered with scheduling the use of these items, which can create substantial conflict.

- *Volunteer level:* Some states issue equipment and materials to each front-line staffer or volunteer at some regular interval and resupply as needed. This often requires that more equipment and materials be purchased, some of which may sit and gather dust.

Inventory and Storage

Many ARE Coordinators ask this question throughout the life of a project : "How much do we have, where did it go, and how can I account for it?" Keeping track of what you have and its location is a complex task. If you have no experience with inventory tracking, consult people in your agency who do. A good inventory system will save money and gray hair.

Example:

One hundred test kits were purchased for a teacher training program. These test kits were distributed to workshop leaders with other materials. Rarely were the test kits returned, and when they were, the party returning them was unknown. On occasion, a shortage of kits arose. Meanwhile, more than 30 kits were located in some workshop leaders' basements.

Solution

A survey/inventory form was sent out to each leader. A decision to collect the kits then was made.

Paperwork, Paperwork, Paperwork

One of the key aspects of your objectives--their measurability--was discussed in **Chapter 3**. Simply put, figure out where you're headed before you start out. Records are kept of all projects undertaken by your agency; you will need to, too. Although it is not the way to evaluate the overall effectiveness of your project, keeping track of the number of people served, items produced or classes held will help in your evaluation of the project's methods and cost effectiveness. Although this is not an effective way to measure the performance outcomes of the project, the numbers are what we report and discuss. When asked "How much have you done?" you need to have the answer close at hand. Keeping track of numbers helps in monitoring inventory, seeing changes in the demand for project materials or training, and facilitating the preparation of annual performance reports.

Data Collection and Analysis

Before deciding what records to keep, first determine what you are required by law or regulation to keep. In the Performance Reports section of **Chapter 3**, the types of information you are required to report are discussed in detail. Consider your agency needs as well. Find out what kind of information your agency requires and how often you need to provide it. Records such as the number of people served often are required, but what about other things? Examples may include: how much money volunteers saved the agency, where programs took place within the state, and so forth.

Other items you may want to account are discussed in **Chapter 5, Program Evaluation**. Once you define the things you want to track, determine how the data will be collected and handled. Because data usually are obtained from forms you or your partners complete, be sure the forms you design are simple. The more complex the form, the less likely it will be completed accurately.

These forms also will serve as an accounting system for your program, so consult with your State Federal Aid Coordinator. Forms should be designed in conjunction with the format of your data base, especially if you will be storing information on a mainframe system.

Data Storage

No matter what information you collect, you must have a place to keep it. That place must be easy to access and be easily adapted to the changing needs of your program. It may be as simple as a notebook or file folder, or as complex as a large mainframe computer with many work stations.

Personal computers are great places to start with data storage. You will be able to store and access information without a lot of prior training. There are many software packages on the market that will make this job a breeze. Some of the more common packages include: Dbase, LOTUS 1-2-3, Symphony, FileExpress, Quattro Pro and Harvard Project Manager. Shop around, read and talk with the experts.

There are some disadvantages to using personal computers for your storage. As your program grows, so do your records, and you may outgrow your software or computer. There also may be only one place where data can be entered–your computer. The potential for conflict is increased if there are others in the agency who are entering data on your computer, and you are trying to work on an important task on that same machine.

Using your agency's network or mainframe system offers the advantage of faster manipulation and storage of complex data. Many different work stations can be used for data entry. Consider this option if your program will be large, and lots of information will be collected.

With a large system, however, you will need to rely more on in-house information systems staff. Your project will have to get in line with the others in the agency, so plan ahead. Bottom Line: Take advantage of the expertise within your own agency to solve your information problems.

In Closing…

Keep these points in mind: You are not alone, but use your people resources wisely. Don't reinvent the wheel–consult with agency personnel and outside experts. Good planning pays off in so many ways, be prepared for the worst. Keep your Grant Proposal handy and use it to remind yourself what you are doing and why--especially on those days when you are busy packing boxes.

Consult this guide, your FWS Aquatic Education Specialist and other ARE Coordinators often. You can learn from others' mistakes, but only if you learn of others' mistakes.

References and Resources

Volunteer Energy Series, Energize Inc., Lobby A 5450 Wissahickon Avenue, Philadelphia Pa. 19144. 215-438-8342

> Publishes a series of guidebooks about establishing and running volunteer programs. Titles include: "From the Top Down: The Executive Role in Volunteer Program Success;" "No Excuses: The Team Approach to Volunteer Management;" and "Colleagues: The Employee/Volunteer Relationship." Also maintains a large library of references and resources on volunteerism.

Volunteer Management Series, VMSystems-Heritage Arts Publishing, 1807 Prairie Ave., Downers Grove, Ill. 60515. 312-964-1194.

> Offers a series of monographs and guidebooks about use of volunteers. Titles include: "Beyond Banquets, Plaques & Pins: Creative Ways to Recognize Volunteers;" "Marketing Magic for Volunteer Programs;" 101 Ideas for Volunteer Programs;" and "Evaluating Volunteers, Programs and Events."

Contact your local United Way and Red Cross or Volunteers of America affiliate. Consult the blue or white pages section of your phone book for these numbers.

Chapter 5: Keeping Your ARE Project On Course -- Evaluation

Program evaluation involves designing ways to determine whether your project objectives have been reached. The key to successful project evaluation is successful project design. Specific, well-thought-out objectives will help you focus your work and suggest areas to evaluate and how to evaluate them.

Choosing when to evaluate and what tools to use are difficult decisions that may require the help of people schooled in this field. To get started, you might contact other state ARE Coordinators, your FWS Aquatic Education Specialist and other educators. Although we are learning more about the right questions to ask about our programs, few of us have the expertise to know what evaluation methods are available and which ones are the best to use in various situations. The states, Fish and Wildlife Service, universities and other partners undoubtedly will be working together to tackle this subject.

Reasons to Evaluate

Why evaluate? A simplistic opinion is that by itself, exposure to an aquatic education project should produce responsible, environmentally aware citizens. The key question is...does it? This is where evaluation becomes important. There are several basic reasons why evaluations are important to your aquatic education project. These include:

- measuring changes in attitude, knowledge, skills and behavior (the **"performance outcomes"** mentioned in **Chapter 3**); Are you making a difference?
- determining if your project is meeting agency needs, objectives and goals;
- measuring the effectiveness of individual project approaches;
- identifying the most successful aspects of the project and areas to drop or redesign;
- justifying additional or continued funding;
- providing accountability to customers; and
- improving overall project effectiveness.

Whether you realize it or not, you will be evaluating your project constantly. Adjusting or fine-tuning how you are implementing your approaches and evaluating some simpler performance outcomes (for example, changes in skills or attitudes) may be relatively easy to accomplish. Evaluation of more complex desired outcomes (i.e., changing behavior) generally requires more time and often involves the use of outside expertise in a long-term study.

One way to think about evaluating your project is by asking a couple of questions:

Are You Doing It Right? (The Process)

Are you implementing your approaches correctly and effectively? Some of the first evaluations you will want to do conduct center on how the project is running. This initial assessment usually focuses on smoothing out rough spots and checking to see if customer needs are being met. This type of evaluation often can be achieved through straightforward surveys and questionnaires of participants and other key groups. Developing a close working relationship with volunteers, facilitators and cooperators will assist you greatly in completing these tasks. This is when you ask questions such as:

- Are there enough working fishing rods in your Fishing Skills and Aquatic Ecology courses so that all students have a good opportunity to practice casting?
- Are you able to run the planned number of workshops or classes? If not, why not?
- Are your educational materials for teachers designed to meet or mesh with their curriculum needs? (Are your materials easy for teachers to incorporate into, say, the junior or high school curriculum you are targeting?)
- Does your working model of a watershed work? Without flooding the room?
- Can visitors to your hatchery exhibit understand the text and diagrams in your display? Is the display located in a place where most visitors see it, without interfering with fish production?
- Do volunteers have enough reference material to teach the sessions you're asking them to teach? Do they get materials on time? Do they believe their training is adequate?
- Are volunteer instructors or facilitators providing accurate information to students?
- Do the teachers who attend your workshops incorporate your material into their classes afterward?

Answers to these questions determine whether your approaches are running smoothly and effectively.

Is It Working? (The Results)

Are you getting the results you want? Are your target audiences walking away with the change in attitude, knowledge, skills and behavior that you want (outcomes you described in your objectives)? Some of these changes can be evaluated fairly easily through simple techniques like giving students a knowledge test before and after your class or watching students demonstrate a skill. Others will involve the longer-term investment of time and money and the outside help mentioned above. When evaluating outcomes, you'll ask questions such as:

- Do students in your Fishing Skills and Aquatic Ecology course finish the class able to describe the essential parts of a fish's habitat? Can they discuss five practices of an ethical angler? Can they safely bait a hook and cast? Can they name three forms of pollution and explain how these might affect fish and other aquatic wildlife?

- Can students in your watershed education program explain what a watershed is and name the one they live in? Can they discuss three different land use practices in their watershed and the likely effects of these land uses on water quality and fisheries? Can they describe the basic life history and status of an anadromous fish species in the river? In the year following your program, are students taking any actions to conserve or restore their local aquatic resources?

- Can hatchery visitors describe three ways that the agency manages fish for sport fishing? Do visitors know that fishing license and excise tax money paid by anglers pays for research and management of fishery resources? Can they give two reasons why wetlands are important to fish? Can they describe one way that they, as citizens, can provide comments to the agency about its existing or proposed fisheries management?

- Do bass anglers better understand and comply with changes in regulations in locations where the agency has used creel surveys and presentations to fishing clubs to educate anglers.

- Is there lower mortality of tidepool animals at sites where the agency put up interpretive exhibits explaining the ecology of these animals and how to observe and handle them?

Routinely asking both types of questions--those concerning the process and those concerning the results--will give you the most useful information with which to improve your project's effectiveness.

A Note on Field-Testing...

Field-testing or pilot-testing a product-be it some new or adapted educational material for one of your approaches or a new activity-can help you evaluate and improve its effectiveness before you go to the expense of adopting it throughout your program. Consider these examples:

You have developed some written materials intended for use at the 4th-grade level. But before you spend a lot of money having them published, you decide to have a few classes try them out first. You find that teachers and students like the material and that students, when tested, learn what you want them to learn. You therefore go ahead and publish these materials and incorporate them in your project.

You want to develop a display about rainbow trout for a fish hatchery. You have two format ideas but aren't sure which one would be more appealing and effective with visitors. You put together rough drafts of your two ideas, place them both at the center, and ask visitors to provide written comments about which they prefer and why.

Depending on what you want to determine, you may be able to field-test an idea fairly easily as part of your regular program management. In other cases, you will need more rigorous and extensive testing to see if the idea really works. In these cases, you can begin to keep a list of research needs, noting aspects of your program for which you'd like solid research data. For example, you may want to know whether certain approaches are more effective than others in fostering stewardship behavior in particular groups. These larger needs, which will require more extensive research, may be addressed best through collaborations. But keep field-testing in mind as a useful tool as you design, refine and evaluate your project.

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Chapter 6: Borrowing Good Ideas

Introduction

If you've diligently read each chapter of this guide, you've had a good look at aquatic education from several views. You've seen that knowing what your state needs leads to good planning, and that good planning leads to good projects. That's what this chapter is about–-projects.

This chapter was really written by coordinators like you. They wanted to get something accomplished, tried something, and it worked! So we asked them to share their good idea(s) with the rest of us, and here they are.

The name of this chapter implies what we want you to do with these ideas. Use them, use parts of them, "tweak" them to your own needs. They are organized randomly under the following program components:

Angler Education
Angler Education (youth)
Angler Education (special populations)
Aquatic Education Centers
Boating Education
Citizen Monitoring
Evaluation
Fish Records
Hatchery Projects
Information Networks
Lakes/Reservoirs/Ponds Education
Marine/Estuary Education
News and Media Coverage
Program Administration (record-keeping, structure, etc.)
Resource Restoration and Enhancement
Site Development (fishing piers, docks, etc.)
Special Events (Free Fishing Day, cleanups, etc.
Stream/River Education
Teacher Training
Video/Audio-Visual & Training Aid Development
Water Quality/Pollution Education
Watershed Education
Wetlands Education
Volunteer Projects

This is not a complete list of all the good things Aquatic Resource Education Coordinators are doing across the continent. There is plenty of innovation everywhere, and this is just a sample of the exciting ways aquatic education can be brought to life in your agency. So, browse and borrow.

Some subjects are assumed to be integrated into all other program components. One of these is ethics; another is safety. Both need to be incorporated into every aspect of aquatic education.

If you need more information on an idea, refer to the list of state Aquatic Resource Education Coordinators in this guide for a contact phone number.

Angler Education (General)

KENTUCKY has developed a **fishing program for campers.** Program staff give about 200 campers per week (for 10 weeks) three hours of fishing instruction and practice at three difference camps.

VIRGINIA wanted to make learning to fish as convenient as possible. Staff members developed a **home study kit** for those wanting to learn at home. The kit consists of a video and a pocket fishing guide, regulations, state fishing information, a fish identification poster, and an ethics brochure. The kit is sold for $15 (about the cost of the materials), and provides youth and families with an easy how-to-get-started short course.

OREGON wanted to find an economical way to **obtain and maintain fishing equipment** for its Angler Education Program. The equipment is part of a kit placed at numerous locations around the state for use by volunteer instructors in youth fishing courses. An ample supply of equipment was available but it all needed simple repair work. The U.S. Marine Corps Reserve Unit, located in Portland, proved to be the answer. Unit members regularly work on equipment donated by the public for the program. Local fire department stations also are part of the program.

MANY STATES publish **weekly fishing reports** to keep anglers informed of fishing conditions and opportunities and encourage fishing. Usually, field staff members report on specific areas and may include water temperatures, levels, and clarity, species active, gear selection, fishing tips, special events and regulations in the report. This information now can be received and collated on electronic mail and provided to the media.

WISCONSIN wanted to reinforce its angler education efforts with a tool that would help anglers and others see lakes and streams as dynamic ecosystems, not just "fish tanks." Staff members developed a **quarterly newsletter**called Fin Clips, designed for certified angler education instructors, their students and other interested people. Part of Fin Clips is written for middle school students; material for younger people is included; and there is a column for instructors to share strategies, information and upcoming events. Also included is a Fishing Buddies column that allows kids space to swap their fish stories and photos. Manufacturers often donate prizes to those that are published.

Field staff members help by writing material for the publication, which gets them involved in the program. Content often includes many disciplines to help readers see the interrelationships among fisheries, healthy ecosystems, and catching fish.

Angler Education (Youth)

NEW JERSEY wanted to provide a fishing experience for very young anglers, aged 4-7. Using a small pond at management areas, staff members offered an **Adult/Child Cane Pole Fishing Class**. The youngsters were introduced to simple fishing with a cane pole, hook, line, bobber and worm. Fishing basics were covered, as well as litter prevention, "sharing the shoreline," and safety. Participants received a First Fish certificate.

IDAHO wanted to develop a strategy to stimulate interest in sport **fishing among teens and young adults**. They selected as a vehicle the **high school physical education, lifetime sports classes**. A two-week curriculum was developed that addresses ethics and responsibility, resource ecology, fish biology, equipment, techniques and fishery management. The curriculum includes a mix of academic, critical thinking and activity-oriented lessons. The agency provides student materials, instructor guides, equipment, training aids and videos.

Each school is encouraged to take its class on a fishing field trip. Agency staff members went to their legislature and for these trips successfully got a **one-day exception to the requirement for a fishing license**. The agency trains teachers to use the curriculum materials, run a successful fishing trip, and gives teachers resource lists of help available in their local community.

MANY STATES offer programs that award **First Fish Certificates** to youngsters who catch their first fish. Many do not require verification, and simply award the certificate based on the information provided on a simple application form. Usually, the agency director signs the certificate.

MANY STATES conduct **fishing clinics** in a variety of settings and for numerous audiences. Some states organize and conduct the clinics themselves; some have partners (i.e., other government agencies or businesses); and some support efforts by others to conduct clinics (i.e., clubs, businesses, local governments). In the latter case, the agency provides instruction and advice about how to organize and conduct a special fishing clinic, assists with site selection, stocks fish (if needed) and performs other fisheries management tasks, loans fishing equipment, and supplies all printed material. At least one state (Virginia) has developed a clinic organization kit for all organizations interested in holding clinics.

Cooperators in these partnerships usually divide the tasks of holding the clinic, including organizing, promoting and conducting the event, providing and training staff, furnishing bait and other supplies, arranging for media coverage, providing drinking water and any food or refreshments, and furnishing sanitary facilities, as necessary.

NORTH DAKOTA wanted to find a way to put on a **kid's fishing camp** without having to go through all the work of hiring counselors, building a camp and finding someone to run it. The solution was to go into partnership with the local YMCA camp located on Lake Sakakawea and put on a one-week camp each summer to teach kids how to fish.

The camp, in its fourth year, uses 20 volunteer fishing instructors each day to take kids fishing in boats, teach shore fishing, fly fishing, and boat/water safety. The students are from 8 to 16 years of age, and the camp can handle up to 80 students at one time.

MANY STATES have adopted the Future Fisherman Foundation's **Hooked on Fishing--Not on Drugs** program. This program trains public and private school teachers to use provided curriculum materials and equipment to teach fishing skills in their classrooms. Emphasizing fishing as an alternative activity to being on drugs is a popular approach. The states often provide fishing equipment, supplementary materials, and field-trip assistance to the schools. Some states even have offered **small grants to school districts and parks and recreation departments** to initiate the program (Ohio and others). In other states, this program is focused on during a special event (Maryland).

Increased aquatic education and fishing opportunities for urban youth, development of a partnership between resource agencies and schools, and potential for shared funding are all benefits of this approach.

OHIO wanted to introduce children and their parents to fishing and aquatic education at the Ohio State Fair. To do this, they have operated a **childrens' fishing pond at the fair** for a number of years. Each year, approximately 14,000 children ages 2-16 try their luck at catching channel catfish (5,000 pounds are stocked during the fair). The children receive basic fishing instruction and then fish for 15 minutes. Fish caught may be kept or returned to the pond. A refrigerator is provided for those who want to take their fish with them when they leave the fair. Unclaimed fish are used for fish filleting and cooking demonstrations.

Other exhibits and demonstrations include four 500-gallon **tanks representing fish communities** found in Ohio, a **walk-through wetlands exhibit**, and fishing clinics at an amphitheater. Demonstrations and exhibits are viewed by approximately 100,000 visitors. Following the fair, the pond is drained, and the remaining catfish are stocked in ponds as part of the Hooked on Fishing, Not on Drugs program. A total of 226 workdays are required to operate the program for the 17 days of the fair. Excluding personnel, the project costs approximately $10,000 annually, assuming no major exhibits are redesigned or developed.

OREGON wanted to develop a program to teach kids to fish using volunteer instructors but needed lots of support at the local level to make it work. The solution was a **partnership with Oregon State University Extension/4-H Program**. Oregon Department of Fish and Wildlife funded student and instructor manual development and printing, equipment, instructor materials, handled record-keeping and instructor certification, and general administration of the program from its headquarters in Portland. Meanwhile, OSU Extension/4-H provided an office in every county in the state to coordinate the 10-hour courses at the local level, to support instructors and to warehouse supplies and materials. Extension also provides a 0.25 FTE specialist to oversee its role in the program, edit the instructor newsletter and join ODFW staff in training instructors. The program is being phased in throughout the next few years, county by county.

MANY STATES have developed their own **angler education student manuals and instructor guides.** These guides incorporate other programs, such as Aquatic Project WILD, and some are specific to local resources.

Angler Education (Special Populations)

MINNESOTA has an increasing population of new Americans (primarily Hispanic and Southeast Asian people). Many do not speak English and come from a subsistence fishing background. Consequently, fishing violations and conflicts with resident Americans were on the increase. The solution was to form a **New Americans Outreach Program**. Program staff members first identified Southeast Asian and Hispanic organizations, then asked the organizations' help in designing appropriate informational and educational activities for their communities. **Bilingual instructors** were hired to help with both oral and written communication exchange. Cultural and sensitivity training was offered to resident angling groups by recruits from the Hispanic and Asian communities. Information at these meetings concentrated on explaining the differences in concepts, values, philosophy and approaches to natural resource management; future demonstrations will show how different cultures prepare harvested fish and game.

MANY STATES are now holding **Becoming An Outdoorswoman workshops**. These workshops introduce women to fishing, hunting, camping, boating and other outdoor activities and skills. These workshops are very popular and usually train about 100 women in each course. Wisconsin, Nebraska, Oregon, Washington, Texas and other states have held these workshops.

KENTUCKY is training volunteers in a six-week program to work with **youth who are identified by schools as "at risk."** The fishing curriculum includes preparation, ethics, fundamentals of fishing and, at the conclusion of the course, a fishing outing. The volunteers' work is very intensive, working one-on-one and one-on-two with the students.

MANY STATES develop **easy access fishing sites for the physically impaired.** Wide paths suitable for wheel chairs and specifically designed ramps, piers and decks often are built to accommodate anglers with physical disabilities.

OREGON needed help finding funding for its angler education efforts for **urban inter-city youth.** Staff members created a partnership with business leaders to form the **City Kids Fishing Club**. Business leaders in Portland, Oregon's largest city, were invited to form a club for boys and girls and sponsor fishing/camping outings. Executives were encouraged to attend at least one overnight event a year at a nearby lake with camping facilities, sleeping on the ground and participating in camp cooking. Oregon staff members weren't sure any business executive would agree to such a proposal, but many of them jumped at the chance to "be a kid again!" Bank presidents, a leading realtor, IBM executives and many self-employed individuals now take part in these fishing camps routinely. The club finances the food, camping fees, fishing gear and bait and other expenses required to make this program work.

Aquatic Education Centers

IDAHO developed the **Morrison Knutson Nature Center** in Boise to increase public knowledge of aquatic ecology and fisheries. The centerpiece of the center is a 550-foot-long human-made **living stream** replicating typical Idaho trout habitat. The stream is home to real fish, mostly salmonids. Signage along the stream emphasizes the importance of cover, habitat diversity, egg development, fish life stages, and spawning habitat needs. The adjacent building holds various interpretive displays and interactive programs that expand visitor knowledge about Idaho fish and habitats, water sources, wetland and riparian ecology, threatened and endangered salmon, and other topics. Slide shows are available in the auditorium.

Development at the center is ongoing. A library, labs and additional classrooms are planned, and the Boise School District is a partner in an effort to use the center for ecology and outdoor education classes. The center uses volunteers and has many corporate sponsors.

OHIO wanted to take advantage of the potential audience available at museums, zoos and similar family education centers in the state. A survey revealed that 39 percent of the state's population visited these kinds of sites at least once in two years. Staff members established a **grants program to fund aquatic exhibits at selected parks, zoos and museums.**

The first two grants were awarded to the Ohio Center of Science and Industry and the Columbus Zoo. Each facility received a grant of $150,000 to develop aquatic education exhibits. Each facility matched or exceeded the amount of the grant and offered expertise and skill in developing public displays. The agency guided and assisted with development of the exhibits and will continue to guide development of educational programs focusing on the exhibits. The exhibits are used heavily by schools and other visitors, about 2 million people annually. This costs about 2 cents per visitor throughout 10 years.

KENTUCKY is developing a $1.5 million **education center** that will be 50 percent aquatic resource-oriented. Ground-breaking occurred in the summer of 1994.

Boating Education

NORTH DAKOTA youngsters 11 to 15 are required by law to take a **Better Boating Course** to allow them to operate a boat by themselves. The course is a home study course with an open book test.

North Dakota wanted to increase use of the course and expand what could be learned from it. Staff members designed a course using national guidelines, a **videotape** and workbook. The new materials offered participants in the course a chance to learn more than they might using the home study course. The new course is three hours in length, includes visual and reading materials, and is taught by volunteer instructors.

Citizen Monitoring

NONE

Evaluation

ALASKA uses the USFWS Pathways to Fishing Program to prepare students for fishing clinics in communities. Staff Members wanted to add an evaluation component to the program to find out what was actually being learned by young anglers. They set up a table just beyond the first learning station and covered it with blank newsprint. Crayons were distributed along the table, with the color black removed. Before the students entered the first station, they were given a few minutes to draw a picture of themselves fishing, with their name and address in one corner. Upon completion of the course, the young angler returned to draw in (using black) what has been learned. The child who showed the highest number of modifications reflecting what was taught won a rod and reel. This process reinforces learning and serves as a check of what has been learned and the effectiveness of each station.

Fish Records

ALASKA wanted to reward anglers who caught trophy fish and released them unharmed. A **trophy fish catch-and-release program** was initiated for fish species that were at risk of over-harvest. The rules are the same as the trophy fish catch-and-kill program, however, fish size is estimated, and any evidence of stress to the fish (improper handling, blood, etc.) in the required photograph disqualifies the entrant. In the project's first year, no trophy rainbow were entered in the catch-and-kill program, while 11 were submitted in the catch-and-release program.

Hatchery Projects

WISCONSIN now includes space for **visitor centers** in any renovation project **at hatcheries.** The field staff from the hatchery helps plan the exhibit for the visitor center. The **displays are tested** at the state fair before being delivered to their permanent home. The displays occasionally are loaned to other locations so more people will see them.

WASHINGTON hatcheries receive many visitors interested in learning about fish and aquatic issues, but visitors often leave with little new information due to the inability of hatchery staff to meet all the visitors' needs. The staff wanted to **use the hatchery visit to educate people about aquatic resources**. An **interpretive kiosk** was developed to provide a welcoming environment and focus the visitor's attention on the hatchery operation, annual cycle of hatchery activity, sport fish raised in hatcheries, aquatic habitat types, and the part the hatchery plays in the watershed.

The kiosk is four-sided and has extended panels covering a square 4 feet on a side. An earth-tone metal roof and rough-sawn timbers provide for a rustic look and offer enough support to withstand a 110-mph wind. The sign panels are porcelain-enamel steel, a colorful, durable product that allows for maximum artistic flexibility as well as long life expectancy (about 25 years). To reduce costs and standardize messages, three of the sides are repeated at all hatcheries. The fourth side is hatchery-specific.

Evaluations by hatchery staff indicate that project goals are being met. Most hatchery visitors start their visit at the kiosk, spending a considerable amount of time reading all four panels.

UTAH developed a **self-guided tour** of its hatcheries, using a handout containing questions corresponding to themes and messages on interpretive signage. Answering the questions on the handout engages the visitors actively in the displays. Visitors are rewarded for completing the handout/answer sheet with a Fishes of Utah poster.

Utah also has developed a **five-year education plan** for its 10 hatcheries. Hatchery personnel were involved in developing the plan, which gave them ownership when it was time to implement the plan.

When NEW JERSEY built its new trout hatchery in the late 1970s, a **natural resource education center and a fishing education pond** were included. The 2-acre pond is stocked with trout and is used to introduce approximately 1,600 new anglers, mostly youngsters, to fishing each year. A two-hour course is held using the pond at the hatchery. The courses include safety, ethics, fish biology, management and regulations as well as casting and actual fishing practice. The center and pond also are used for teaching beginning fly-casting and fly-tying. Volunteers assist with instruction.

Information Networks

NONE

Lakes/Reservoirs/Ponds Education

KENTUCKY developed five modules to help its vocational agriculture educators teach about **farm pond management**. The modules are being field-tested by 40 teachers, and once finalized, will be used in workshops throughout the state.

MAINE is using **lake access site bulletin boards** to educate boaters and anglers about lake fish, water and angler/boater safety. The displays feature information and graphics describing Maine boating laws and safety, techniques to stop the spread of Eurasian milfoil, catch-and-release fishing, maintaining and improving water quality, lake watershed boundaries and depths, physical characteristics, fish species and other information. The display panels measure 6 feet by 3 1/2 feet and are painted aluminum. They are installed at boat access sites.

OHIO wanted to reach large numbers of anglers and non-anglers with information to increase these individuals' understanding of the management of Lake Erie. A series of **restaurant placemats** was developed focusing on fish management, walleye populations and youth fishing. With a $10,000 investment, the division developed and printed 350,000 placemats and offered them free to restaurants upon request. This strategy allowed a large number of people to be reached at a reasonable cost.

Marine/Estuary Education

CALIFORNIA wanted to get **inner-city kids** from the Los Angeles area **turned on about the marine environment and fishing in the ocean and estuaries.** Staff members developed an outreach project centered around sharks. The project uses a traveling shark show that visits schools and libraries in the metropolitan area. The show consists of a lively lecture in English and/or Spanish, hands-on observation of thawing shark specimens, and live sharks in a 200 -gallon tank hauled by a flatbed truck. The show plays about twice a month to an average audience of 100, and the theme of shark lore is an effective attraction--"bait" for young minds. Fishing and enjoying the marine environment is the message that participants obtain.

OREGON'S **rocky intertidal areas** were being impacted negatively by visitors during low tide series. Law enforcement people believed most of the illegal removal of intertidal animals was out of ignorance of the regulations, and coastal residents reported that school groups either were removing or relocating intertidal creatures at these sites. They decided to attempt to change the behavior of tidepool visitors by developing and erecting **interpretive signs** at each of 33 sites along the Oregon coast.

A 2- by 3-foot, full color, porcelain-enamel sign was developed to help visitors identify intertidal animals and plants and to remind visitors how to treat these creatures. Informal evaluation so far has shown high levels of visitor use, with visitors often staying at the sign 3-4 minutes. More in-depth evaluation will be conducted.

CALIFORNIA'S Elkhorn Slough National Estuarine Research Reserve wanted to promote the use of its site by teachers and students. Staff members offer **one-day workshops** in the fall and winter for teachers. Workshops include an Elkhorn Slough Environmental Curriculum Manual and support materials. The workshops cost $5. Once trained, teachers have access to microscopes, binoculars, field guides, chaperon packs, activity kits and videos. Reserve staff also assist teachers in planning their visit, as well as provide advanced sessions that focus on slough-related natural and cultural history topics.

News and Media Coverage

For many years, NEW JERSEY has provided sunfish for **children's fishing derbies** sponsored by municipal recreation departments. In the past, fish were stocked a day or two before the derbies, which typically were held on a Saturday. This meant that few people were aware that the division had any role in the derby's success. Recognizing the potential public relations value of the stockings, agency staff began **sending the stocking truck the morning of the derby.** A staff person from the Interpretation and Recreation Unit accompanied the truck. At the derby site, an aquarium was filled with water and sunfish, as well as three or four other species raised at the agency's warm/coolwater hatchery. A very brief presentation was made about the agency, funding sources and the fish. Local media were advised and showed up to cover the event. Substantial print coverage has resulted (photo and caption primarily) of these events, including plenty of agency recognition.

FLORIDA wanted to encourage interpersonal media contacts to promote agency credibility and to increase understanding and support of fisheries research and management. As part of this strategy, fishery biologists and administrators conducted a **series of Largemouth Bass Symposia targeting the outdoor press.** These events featured presentations by biologists, panel discussions between division biologists and resource users, as well as informal social interactions. An event in 1992 provided an extensive package of 60 informational and/or semi-technical status reports summarizing topical fishery issues and project activities in hard copy and on disk. Additionally, 17 free-standing displays were featured, exhibiting a variety of activities, findings and other topics of interest.

The symposia generated a wealth of media coverage about division aquatic and other activities; this coverage persists to the present. Social interaction provided an opportunity for the media to establish important division contacts and helped perpetuate exposure of project activities, direction, and philosophies. These events were perceived by the outdoor media as extremely important public relations and communications efforts of direct benefit to the public and aquatic resources.

Program Administration (Record-Keeping, Structure, Etc.)

NONE

Site Development (Fishing Piers, Docks, Etc.)

ALASKA uses **aquatic education trails** to help elementary-level teachers use the immediate environment as learning sites. Teachers and agency staff inventory the local aquatic environment, design curriculums specific to the site, and plan and construct a trail compatible to the needs of the school and site. Students and parents usually supply most of the labor, and materials are donated by local contractors. Teachers often vie for use of the trails, with sign-up sheets filled weeks in advance.

Special Events (Free Fishing Day, Cleanups, Etc.)

VIRGINIA took Free Fishing Day and National Fishing Week one step further. Staff members there hold a **Youth Fishing Month** in June that includes two promotional ideas. First, they provide a free fishing identification poster and guide to all first-time license buyers if they purchase their license during National Fishing Week. Second, they developed a program under which youth under 16 can submit to the agency a photo of themselves fishing during Youth Fishing Month and be placed in a drawing for a Beginning Angler Kit.

MARYLAND holds the **Governor's Youth Fishing Derby** on Free Fishing Day in June, which combines fishing and environmental education at 23 sites. Many cooperating state and county agencies, corporations and private organizations join forces with the agency to make the day a success. Each of the sites arranges educational activities related to Aquatic Resource Education and wise use of our natural resources. Topics include: human impact on the environment with an emphasis on local watersheds and the effect on the Chesapeake Bay, recycling, boating and water safety, and fishing instruction. Catch-and-release techniques are emphasized during the noncompetitive event. Through participation, a strong network of volunteers, educators and special interest groups was created.

Additionally, substance abuse prevention officers tie in Hooked on Fishing, Not on Drugs using puppet shows, amateur and professional entertainers, and exhibits.

OREGON wanted to find ways to connect Free Fishing Day with inner-city youth in Portland, Oregon's largest city. Capitalizing on the city's biggest celebration of the year, the Rose Festival, for which approximately 20 ships from the U.S. Navy Pacific Fleet come to town, **military personnel** from the ships are assigned an inner city youngster as a **fishing buddy for Free Fishing Day**. A fishing clinic for hundreds of kids and their buddies is held at a nearby lake. The ships provide food for the event, and boats are volunteered by members of local fishing clubs. The U.S. Coast Guard provides safety backup and logistic support. An additional benefit is that many of the locally stationed military personnel involved have become certified in the Angler Education Program.

VERMONT holds both basic and advanced **week-long summer camps** at two sites for 12- to 16-year-old boys and girls in its Green Mountain Conservation Camp Program. The program began in 1966 and is still going strong today. Youngsters are taught hunter and firearm responsibility, fish and wildlife ecology, conservation, canoeing, outdoor safety, camping skills, first aid, archery, fishing techniques, fly-fishing, wetlands exploration and forest resource practices. The program accommodates between 700 and 1,000 youngsters per summer. Students pay a fee ($70 at this writing) to attend the camp.

Stream/River Education

MISSOURI wanted to promote proper stream management by educating the public about streams and how they function. Using the concept of "seeing is believing," staff members developed a **stream table** to demonstrate both good and poor stream management, and basic stream function. The model is simple to set up, relatively small (about 3 feet by 6 feet), and can be transported easily. The stream table is a shallow rectangular box filled with several sizes of granulated plastic. Water is circulated using a 12-volt pump to the "headwaters" end of the table and allowed to flow freely down a channel formed in the plastic “substrate.” The water flows out a drain--the "mouth"--into a reservoir container and is recirculated.

The stream table has been used in elementary school classrooms, with civil engineers to settle differences about permit applications, and in many other situations. A self-contained unit mounted on a trailer frame was developed for wider application and to reduce set-up time.

WASHINGTON wanted to connect kids to fish, and staff members did this by creating a program in which **kids raise salmon in their own classrooms.** The program has become very popular because of the hands-on approach. Students care for "their" salmon fry while learning about salmon life histories and habitat requirements. By becoming salmon stewards, these students are more aware of local creeks and streams and are more conscience of and knowledgeable about water quality issues. While learning how to protect the salmon's environment, the students ultimately are learning how to protect their own environment.

The Department provides each school with a 55-gallon aquarium and a free-standing refrigeration unit. The equipment is on long-term loan to the school until the school no longer wishes to continue to rear salmon, then it is returned to the department and eventually used at another school.

Eggs are provided through local state, federal and tribal hatcheries, and participating schools are monitored by staff biologists to ensure species and habitat suitability. Currently, about 400 schools are caring for salmon eggs and fry in the project.

HAWAII was having a difficult time with **aquaria fish being dumped into streams and waterways**. At least 18 exotic species were appearing frequently in these systems, about two new species each year. Staff members created a program designed to **encourage the public to return unwanted fish to aquaria retailers.** Shops signed up for the program, and television spots and posters were made. Air time was purchased and donated for the spots to run for one year. Cooperating stores kept track of the number of fish returned, and the waterways were monitored by biologists. They reported no new species and a reduction of numbers of exotic fish.

IDAHO wanted to develop a strategy to enhance public information regarding stream health. The **Streamwalk Program**, originally developed by the Environmental Protection Agency, was adapted and presented through area workshops to individuals and groups desiring to enhance their understanding of streams and develop monitoring and/or educational programs for streams in their community.

An **interagency team** was developed consisting of various state and federal agencies to conduct the workshops. The team provided direct access and information about all stream programs currently underway in the state, and represented the various views and missions of the participating agencies. Participants of the workshops came away with a broad understanding of streams, stream health, stream issues and greater insights into how to resolve local issues and concerns.

Teacher Training

MINNESOTA has an environmental education mandate that requires all educators to incorporate natural resource topics into their curriculum. Many agency staff members are asked to give presentations to help teachers meet this mandate. Resource professionals often feel unprepared to give presentations, and educators feel the same way about teaching about natural resources. To help each of these groups do a better job of educating the public, **special seminars--"Teaching in the Out-of-doors"--**were developed. The idea is to **bring educators and natural resource professionals together to learn from each other**. Educators spend the first day of the three-day event teaching resource professionals about teaching and learning strategies and classroom organization. On day two, the natural resource professionals show how to test water quality, manipulate data, survey resources, etc. The third day is spent planning and delivering an outdoor activity with youth. A teacher is paired with an agency person, and evaluation is done by peers, youth and presenters at the conclusion of the day.

Video/Audio-Visual & Training Aid Development

In FLORIDA, City and county commissioners routinely make decisions that affect lakes, streams and watersheds. Uninformed or biologically insensitive decisions may negatively impact these resources and the fish and wildlife populations they support.

Florida produced a **slide program titled "Responsible Aquatic Management" designed to target commissioners and other planning officials at the city and county levels.** This program provides educational insight regarding the need for environmentally responsible aquatic management and watershed development direction. Content includes the importance of aquatic vegetation, negative impacts of septic tanks, storm-water runoff, seawalls, use of zoning restrictions to maintain compatible land uses in the proximity of aquatic resources, economic importance of freshwater sport fishing as it relates to the local tax base, and the need for vegetated shoreline buffer zones. Restoration or mitigation techniques for damaging or potentially damaging projects are also covered.

A concerted effort to present the program to city and county commissions, planning councils and environmental/outdoor sports groups and homeowner groups will be developed soon. Regional management biologists and other project biologists provide this information and offer suggested appropriate resource management decisions.

MAINE has developed itsr own **video productions** to use in educational settings, including "Bass Telemetry Survey," "Bass Management in Maine," "Catch-and-release Fishing in Maine," and "Remap," a video about water quality and pollution-related testing.

Water Quality/Pollution Education

ALASKA has developed the **Alaska Water Watch Program** to help adults and young people learn about aquatic ecosystems, water quality, pollution prevention and habitat preservation and rehabilitation. The program, involving a variety of agencies and groups, includes more than 30 organizations and schools and is growing. **Handbooks for stream surveys, macroinvertebrate sampling, chemical sampling, and water flow reservations** for fish provide step by step instructions on data gathering and interpretation.

TENNESSEE wanted teachers in certain watersheds to integrate **nonpoint source pollution (NPS) education** into their classrooms. The Tennessee Wildlife Resources Agency teamed up with the state's environmental agency to offer **teacher workshops** emphasizing the integration of pollution prevention. These workshops are held in watersheds where NPS pollution problems exist, and with Environmental Protection Agency grant funds.

Each workshop is tailored for the watershed in which it is held. Workshops consist of video and slide presentations along with speakers who have knowledge of the watershed itself. Various agencies in that area present materials and share local information. Activities include macroinvertebrate and benthos studies, water testing, and seining. A booklet was developed for teachers to use as a student text in the classroom. Other materials are distributed to the educators, and funds are available to take care of some of their costs. The workshops are available to classroom teachers, scout and 4-H leaders, and other interested people.

Watershed Education

KENTUCKY developed five modules to help vocational agriculture educators teach about **riparian zones and management.** The modules are being field-tested by 40 teachers, and once finalized, will be used in workshops throughout the state.

DELAWARE is developing a **traveling Aquatic Critters of Delaware exhibit** in response to the results of a needs assessment. The exhibit will feature a variety of live creatures (selected for ease of transport, care and interest) supplied by agency field staff, in addition to shells, study skins and other "feel and touch" items. Interpretive stories, games and post-visit activities will be developed to enhance the learning experience. Seasonal staff and/or volunteers will be involved in both the development and presentation of this program.

OREGON wanted to help teachers place more emphasis on streams and watersheds as learning sites and increase understanding of watersheds and how they function. Agency staff developed a **unique grade 6-12 curriculum** titled "Stream Scene: Watersheds, Wildlife and People," as a centerpiece for their watershed education efforts. Stream Scene deals with watersheds, water cycle, riparian areas, water quality and aquatic organisms, providing both classroom activities and field surveys of streams. The field activities use the same methods and survey techniques as used by agency biologists. Workshops of various lengths are held each year to help teachers use the materials and gain enough confidence to take their classes into a stream. Data taken by students often are used by agency biologists, and the classes conduct restoration work with biologists. Watershed education efforts in the state have connected schools with fishery biologists.

A new middle school in Juneau, ALASKA has nearly all of its teachers wanting to begin water quality studies in a small local watershed. Since this level of use by more than 700 students could negatively impact the watershed, a comprehensive series of studies applied to the entire watershed is being planned with other interested agencies. **Real, scientific information about flora and fauna throughout the system is being collected by the students.** This information will be used by students and agency staff to begin watershed-wide land use planning. A publication also will be developed detailing what kinds of studies can be carried out by students on all watersheds in the state. This project will allow the development of a computer program and network that could connect all students working on a watershed or within the state.

Wetlands Education

LOUISIANA'S coastal wetlands are being lost through conversion to agriculture, levee construction, subsidence, wave erosion and other factors. Agency program staff's aquatic education program wanted to address the importance of wetlands and coastal marshes to wildlife and people, and to increase peoples' knowledge and appreciation of the role of wetlands and marshes in fisheries, erosion control, water quality, and wildlife habitat. They teamed up with a university extension program and Sea Grant program to develop a **wetland education camp** called "Marsh Maneuvers."

Marsh Maneuvers consists of four camping sessions. Sixteen senior 4-H members attend each session. These campers are introduced to hands-on activities such as fish identification, cast netting, shrimp trawling, water-quality testing, plant identification, and fishing for coastal species. Wetland functions and values, causes of wetland loss, water quality as it is related to wetland environments, pollution and uses of wetlands are examples of other topics covered. By pre-testing and post-testing the participants, organizers found there was a 50 percent increase in knowledge about the topics.

DELAWARE wanted to develop a framework within its agency that would **make their various programs for educators accessible** to schools and teachers. But the internal programs originated from different divisions in the agency. Staff members formed a steering committee made up of key players from five divisions involved in wetlands education and through a series of meetings and workshops, the committee is **developing an integrated departmental K-12 wetlands education curriculum.** It is hoped that this approach will eliminate any redundancy in effort, identify where the needs and gaps are (thereby providing direction for new programs), spotlight the various field, classroom and other resources already available, consolidate funding sources, and coordinate what the agency has to offer. Also, the process ensures that the finished product conforms to the emerging curriculum framework standards in development at the Department of Public Instruction.

MAINE has developed a **Wetlands and Wildlife Interpretation Area** near an established visitor's center in Gray to help the public appreciate the value of wetlands to people and to wildlife. The functions and value of wetlands and open-water habitat are introduced in the format of three large informational displays at the beginning, middle and end points of the self-guided interpretive trail. In addition to natural history, a variety of wildlife enhancement strategies are demonstrated and interpreted using signs.

Through the use of a needs assessment DELAWARE identified their top educational program type as **hands-on learning kits**. Also identified was a need for wetlands education materials. Both needs are being addressed by the agency's Delmarva Wetlands Discovery Kit. The kit includes a visibly appealing, interactively oriented, classroom-ready, multi-station learning kit/exhibit aimed at introducing Delaware upper elementary/middle school students (as well as adults through public displays) to the characteristics, values and wonders of the wetlands around them. To develop the kit, high school students are being "mentored" by agency staff people to become the designers, developers, marketers and teachers of a prototype kit that will be expanded to become a part of the state's wetlands education program.

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NONE

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Appendices

Some Appendix information is provided in this first version of the ARE guide; the rest will be developed by the Washington D.C., office of the USFWS Division of Federal Aid and distributed as soon as it is available.